



# **United States Environmental Services**

## **Clarke County, Mississippi**

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## **Executive Summary**

On November 1, 2007, a propane explosion occurred resulting in a fire in Clarke County, Mississippi. At 20:00 Central Daylight Time (CDT) on November 1, 2007, Center for Toxicology and Environmental Health, L.L.C. (CTEH®) was requested by United States Environmental Services (USES) to address potential chemical hazards, propane and combustion products, to emergency responders and the community due to the fire. CTEH was requested to provide perimeter and community air monitoring and toxicology support for chemicals to Clarke County, local emergency responders, on-site personnel and surrounding communities. CTEH arrived onsite at approximately 23:45 (CDT.)

Real-time air monitoring for volatile organic compounds (VOCs), propane (explosive atmosphere), and products of combustion was performed throughout the work area, along the perimeter of the work area, and in the surrounding community. Monitoring began at 01:33 CDT November 2, 2007, and continued through November 3, 2007 at 00:58 CDT. The fire in Clarke County began as a result of a failure in the 12 inch propane pipeline buried underground. As a result of the fire, VOCs and particulate matter (soot) were potentially released to the atmosphere. Approximately 1,998 real-time readings were recorded by CTEH during this time. NO<sub>2</sub>, CO, VOCs, lower explosive limit (LEL), oxygen (O<sub>2</sub>), and particulate matter (PM) were monitored around the work area and throughout the community. Analytical air sampling for VOCs and polycyclic aromatic hydrocarbons (PAHs) was also performed at the site perimeter. Work area air monitoring results were compared to applicable standards and guidelines established by Occupational Safety and Health Administration (OSHA) and American Conference of Government Industrial Hygienists (ACGIH). Work area air monitoring results show that time-weighted average (TWA) concentrations of VOCs and PM did not exceed worker exposure standards or guidelines. The American Industrial Hygiene Association (AIHA) establishes Emergency Response Planning Guidelines (ERPGs) to protect communities from the adverse effects of chemicals. In addition, the United States Environmental Protection Agency (USEPA) provides exposure recommendations for communities impacted by fire smoke, including sensitive individuals. Air monitoring and sampling conducted between the work area and community show that TWA concentrations for chemicals of interest did not exceed community exposure guidelines. Furthermore, real-time monitoring did not detect sustained levels of PM at unhealthy levels in the community outside the immediate vicinity of the pipeline breach. On November 3, 2007, USES released CTEH's services after the fire was extinguished.

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## **1.0 Introduction**

On November 1, 2007, a fire and subsequent explosion in Clarke County, MS, began as a result of a failure of a 12 inch propane pipeline buried underground. As a result of the fire, products of combustion including noxious gases, volatile organic compounds (VOCs), and particulate matter or soot (PM) were potentially released to the atmosphere. This report summarizes Center for Toxicology and Environmental Health L.L.C (CTEH<sup>®</sup>) work activities in response to the incident. The “work area” refers to the area immediately surrounding the site of the fire. The work site photographs can be found in Appendix A.

### **1.1 Description of the Incident**

On November 1, 2007, shortly before 10:30 Central Daylight Saving Time (CDT), a propane pipeline explosion occurred in Clarke County, Mississippi (Figure 1.1). The propane pipeline explosion and resulting fire was a result of a failure in the 12 inch pipeline. A one mile evacuation radius was issued by Mississippi emergency responders. The resulting fire impacted several residences and many acres of surrounding woods and grassland. The remaining propane in the pipeline burned off and was extinguished in the late afternoon on November 2, 2007.

### **1.2 Description of Response**

At approximately 20:00 CDT on November 1, 2007, CTEH was requested by Mr. George Malvaney of USES to address potential chemical hazards to emergency responders and the community due to a propane explosion and resulting fire at a location in Clarke County, Mississippi (Figure 1.2). CTEH was requested to provide work area, perimeter of the work area, and community air monitoring for chemical hazards and to provide toxicology support to Clarke County and local emergency responders. As a result of the propane fire, products of combustion including noxious gases, VOCs, and PM (as soot) were potentially released to the atmosphere. Before arriving on site, CTEH responders reviewed current toxicological literature and air sampling methods for chemicals potentially being released from the fire. CTEH's Toxicology Emergency Response Program (TERP<sup>SM</sup>) team mobilized and arrived onsite at 23:45 CDT on November 1, 2007. Upon arrival, CTEH began reviewing site conditions and exposure recommendations. The propane fire in Clarke County, Mississippi was still burning upon CTEH arrival. Local firefighters were present on site. CTEH conducted continuous site perimeter and community air monitoring activities and provided toxicological support. On November 3, 2007, USES released CTEH's air monitoring and toxicology support services.

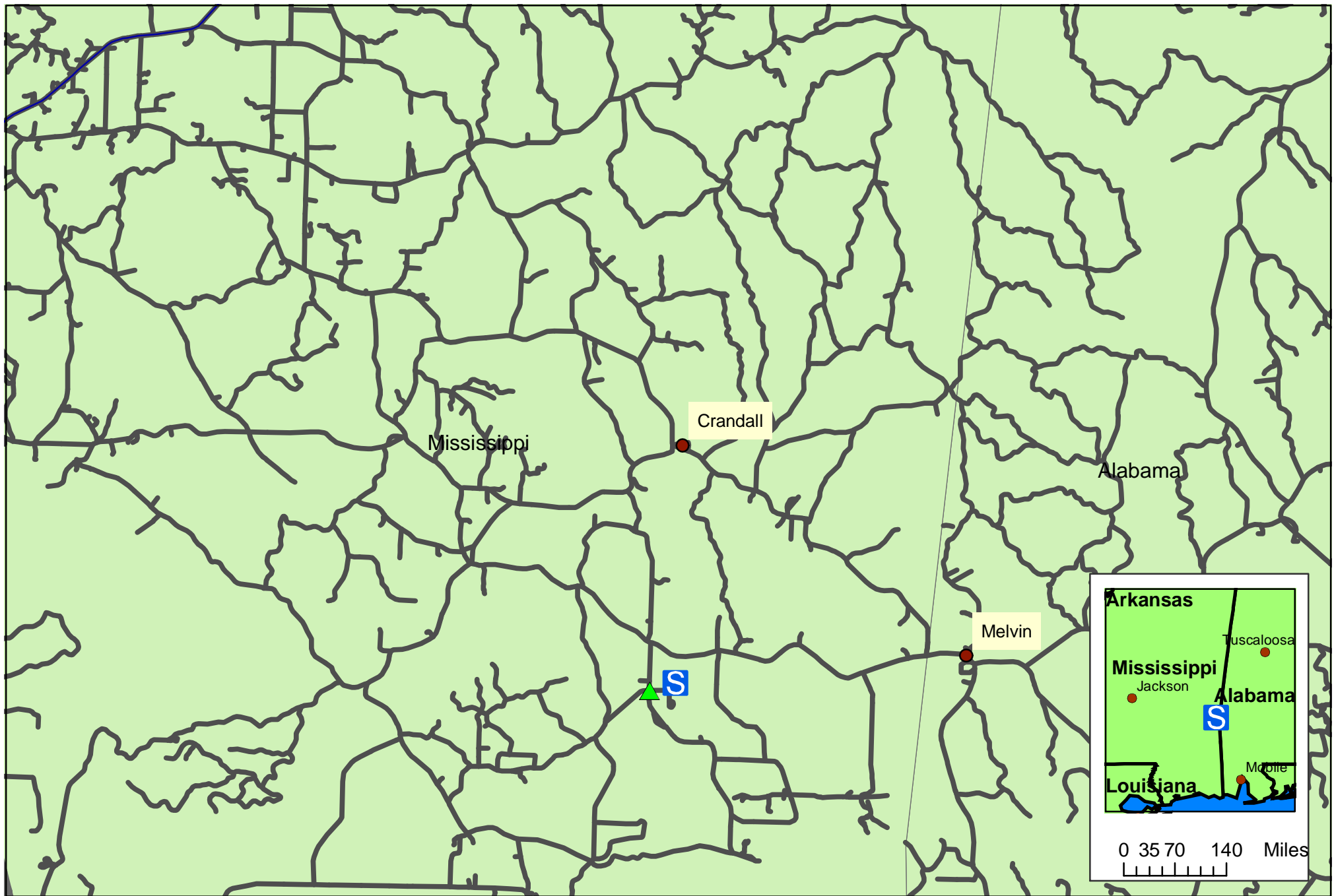


Figure 1.1 Incident Location

### Legend

- S Incident Location
- ▲ Command Center

**Incident Location Map**  
**Propane Fire Investigation**  
**Clarke County Mississippi**  
**November 1-3, 2007**



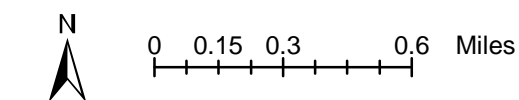
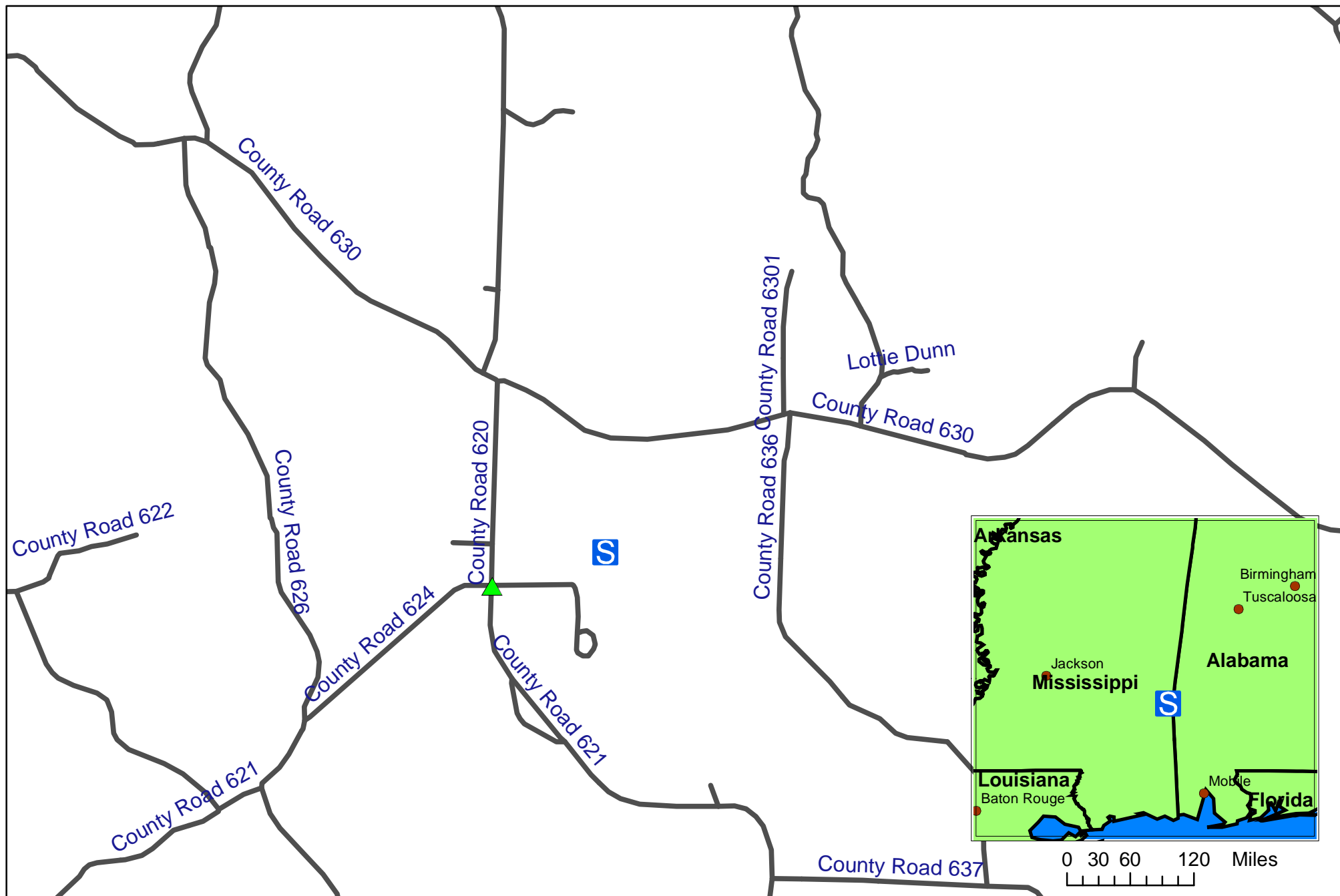




Figure 1.2 Incident Location Overview

### Legend

-  Command Center
-  Incident Location

### Overview of Incident Location Map Propane Fire Investigation Clarke County Mississippi November 1-3, 2007



## **2.0 Overview of the Chemicals of Interest**

The purpose of CTEH's air monitoring operations was to collect sufficient data to determine the potential human health effects, if any, posed by airborne chemicals and PM (smoke or soot) from the job-site to off-site workers, residents, first-responders, contractors, or individuals passing through the area. Accordingly, CTEH initiated ambient air monitoring at the work area, site perimeter, and in the surrounding community upon arrival for chemicals that may pose an inhalation hazard to workers and/or residents. CTEH's air monitoring and sampling approach consisted of air monitoring for NO<sub>2</sub>, CO, VOCs, lower explosive limit (LEL), oxygen (O<sub>2</sub>) and PM. CTEH also conducted air sampling at four perimeter stations for VOCs and polycyclic aromatic hydrocarbons (PAHs).

CTEH air monitoring focused primarily on determining the airborne concentrations of NO<sub>2</sub>, CO, PM, LEL, and VOCs. CO and PM were monitored in real-time with occasional detections above background levels indicating areas of potential smoke impact. None of the other monitored chemicals were detected using real-time methods.

VOCs comprise a diverse class of compounds with a wide range of toxicities and chemical properties. Specific VOCs detected through analytical air sampling were present at trace levels. Additionally, samples collected at fixed locations for PAHs analysis detected acenaphthene at trace levels. All results were well below exposure guidelines. Real-time readings for VOCs were non-specific (see Section 4.1). There were no sustained VOC detections in or around the work area.

### **2.1 Chemical Overview**

The following sections provide general overviews of the detected chemicals (CO, PM, and PAHs) as described in Section 2.0.

#### **2.1.1 Carbon Monoxide- CAS 630-08-0**

CO is produced from the incomplete combustion of carbon-based materials. Common sources of CO include exhaust from internal combustion motors, cigarette smoke, house fires, charcoal grills, and defective (wood, coal, and gas) heating systems.

In homes without gas stoves, average levels of CO range from 0.5 to 5 ppm. Levels often range from 5 to 15 ppm near properly functioning gas stoves, and may exceed 30 ppm near poorly adjusted gas stoves (EPA, 2007). CO levels of up to 100 ppm have been reported in some household kitchens immediately after gas stoves were used for cooking (Abelsohn et al., 2002). Cigarette smokers are exposed to 400-500 ppm for the

approximately six minutes it takes to smoke a cigarette (Raub et al 2000). Human exposure studies suggest that the most important source for regularly encountered elevated carbon monoxide levels is motor vehicle exhaust. The motor vehicle interior has the highest average CO concentration of all microenvironments, averaging 9–25 ppm. Exposures in excess of 35 ppm have been reported for some commuters (WHO, 1999). CO levels in automobile exhaust may be as high as 100,000 ppm (10%) (Kao and Nanagas, 2006)

The primary mechanism by which CO elicits its toxicity is by displacing oxygen from hemoglobin in red blood cells. The CO-binding affinity of hemoglobin is more than 200 times that of oxygen (Kao and Nanagas, 2006; WHO, 1999). The binding of CO to hemoglobin forms a compound called carboxyhemoglobin (COHb), and results in decreased oxygen carrying capacity in the blood and subsequent tissue hypoxia (i.e. insufficient oxygen). Direct cellular toxicity also appears to play an important role in CO toxicity, as several studies have demonstrated CO-induced toxicity independent of hypoxia or CO-Hb formation. Proposed mechanisms of cellular toxicity include binding to heme-containing cellular proteins such as cytochromes, myoglobin, and guanylyl cyclase, and increased release of nitric oxide (Kao and Nanagas, 2006).

The symptoms of acute carbon monoxide poisoning are usually multiple and non-specific, and many body systems can be involved. Carbon monoxide poisoning often produces non-specific symptoms, and has been called a “great mimicker” due to its ability to mimic a variety of systemic diseases (Kao and Nanagas, 2006). It is often confused with flu-like viral illnesses. Table 2.1.2 is a list of clinical signs and symptoms associated with carbon monoxide poisoning compiled by Kao and Nanagas (2006). As with many chemical exposures, pre-existing systemic illness can enhance the toxicity in exposed persons. In patients with severe cardiovascular disease, the ability to compensate for increasing COHb levels may be diminished.

**Table 2.1.2 Clinical Signs and Symptoms Associated With CO Poisoning**

(Adapted from Kao and Nanagas 1996)

<b>Mild</b>	<b>Moderate</b>	<b>Severe</b>
Headache Nausea Vomiting Dizziness Blurred vision	Confusion Syncope Chest pain Dyspnea Weakness Tachycardia Tachypnea Rhabdomyolysis	Palpitations Dysrhythmias Hypotension Myocardial ischemia Cardiac arrest Respiratory arrest Noncardiogenic pulmonary edema Seizures Coma

The signs and symptoms of acute carbon monoxide poisoning are generally poorly correlated with carboxyhemoglobin (CO-Hb) levels. Symptoms are not usually reported in the general population individuals with CO-Hb levels below 10%. CO-Hb levels ranging from 15 to 30% may produce neurological symptoms of carbon monoxide poisoning, such as headache, dizziness, weakness, nausea, confusion, disorientation and visual disturbances (Kao and Nanagas 2006, WHO, 1999). At Co-Hb levels above 30%, the brain can no longer maintain cerebral oxygen consumption constant and therefore neurological effects may ensue (WHO, 1999). Exertional dyspnea (difficulty breathing), increases in pulse and respiratory rates and syncope (fainting) are observed with continuous exposure producing CO-Hb levels from 30% to 50%. CO-Hb levels greater than 50% may produce coma, convulsions and cardiopulmonary arrest (WHO, 1999), and CO-Hb levels greater than 60% to 70% are rapidly fatal (Kao and Nanagas, 2006). Short-term recovery from non-lethal CO intoxication is generally rapid, occurring within a matter of hours; however, some individuals with serious exposures, after a period of apparent recovery, will develop delayed neurological toxicities which may develop 2 - 40 days after the initial exposure. Symptoms include headache, difficulty concentrating, lethargy, emotional lability, amnesitic syndromes, dementia, psychosis, Parkinsonism, chorea, apraxia, agnosia, peripheral neuropathy and urinary incontinence (Thom et al., 1995).

### **2.1.2 Particulate Matter**

Particulate matter (PM) is a complex mixture of small solid particles that are suspended in air. Smoke-related particulate matter is the principal pollutant of concern during fires. These particles typically consist of a mixture of elemental carbon (graphite), incompletely-burned fuel, nitrogen, sulfur, and various other elements depending on the chemical composition of the source material, oxygen availability, and temperature. Gaseous components of smoke including organic and inorganic compounds can also condense and adsorb onto the particles. Respirable particles are those small airborne particles or droplets that can be inhaled into the lungs. Larger suspended particles tend to be trapped in the nose, mouth or throat. Respirable particulate matter is typically categorized by particle sizes expressed in mean aerodynamic diameter;  $PM_{1.0}$  ( $\leq 1.0 \mu m$ ),  $PM_{2.5}$  ( $\leq 2.5 \mu m$ ), and/or  $PM_{10}$  ( $\leq 10 \mu m$ ).

People are exposed daily to PM from naturally occurring sources and from man-made sources. Primary sources of PM include cars, trucks, power plants, fireplaces, cigarette smoke, forest fires, and volcanoes. PM exposure can occur indoors, mostly from cigarette smoke, home heating sources (such as wood burning fireplaces), and cooking, but also from outdoor PM that can easily enter indoor environments. Indoor exposures to PM may be substantial because this is where people spend most of their time.

PM is commonly present in air and may be drawn into the body with every breath. Particles in the size of range of 10 to 100  $\mu\text{m}$  tend to be deposited in the mouth, throat or nose. Soluble particles simply dissolve, while insoluble particles are transported through the airways to be swallowed or expectorated. Smaller particles less than 10  $\mu\text{m}$  in size are generally able to travel into the lower part of the lungs and, if deposited, are typically removed by the body's immune system.

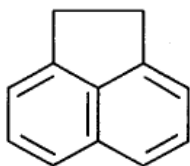
Exposure to sufficient quantities of smoke-related particulate matter or other components of smoke can result in irritation of the skin, eyes, nose, and respiratory tract. Symptoms may include headache, nausea, dizziness, red eyes, burning of the eyes and throat, cough, or shortness of breath. In most cases, these effects do not persist and resolve shortly after removal from the exposure. Individuals with pre-existing heart conditions or lung conditions such as asthma or chronic obstructive pulmonary disease (COPD) may be more sensitive to the effects of smoke. In particular, irritants in smoke may trigger symptoms of asthma or other lung conditions. Because the symptoms associated with exposure to PM also may be caused by several other factors (e.g., exposure to allergens, molds, ozone, and other air pollutants), it is often difficult to determine whether PM or some other factor is responsible for an individual's symptom(s).

The potential of smoke to produce respiratory illness is based on typical physiological and chemical dose-response mechanisms. The amount of smoke inhaled and the amount of exposure time, together with individual susceptibilities (preexisting lung or heart disease) are all factors that may affect smoke-related health effects. Many factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. Other than transient irritation, no acute health effects from short-term exposure to PM and adsorbed organic chemicals are expected for normal healthy adults.

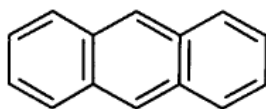
The complex and variable mixtures of PM make formal classification and analysis extremely difficult. The International Agency for Research on Cancer (IARC) has not classified particulate matter. A carcinogenicity assessment is not available from the United States Environmental Protection Agency Integrated Risk Information Service (IRIS), nor is particulate matter listed in the Report on Carcinogens, Eleventh Edition; U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program.

### 2.1.3 Polycyclic Aromatic Hydrocarbons (PAHs)

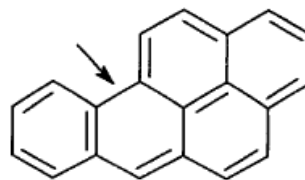
Polycyclic Aromatic Hydrocarbons (PAHs) are a family of hundreds of organic compounds characterized by multiple adjoining aromatic carbon rings. Examples of selected PAH structures are given below (ATSDR, 1995):



Acenaphthene  $C_{12}H_{10}$



Anthracene  $C_{14}H_{10}$



Benzo[a]pyrene  $C_{20}H_{12}$

Most PAHs are relatively insoluble in water, and have very low vapor pressures (ATSDR, 1995). PAHs are formed by the incomplete combustion of organic materials, and are ubiquitous in the environment. The primary source of PAHs in the environment is incomplete combustion of wood and fuel for residential heating (NTP, 2004). Other common sources of PAHs include cigarette smoking, automobile exhaust, and charbroiled foods. The commercial production of PAHs is not a significant exposure source for the general population. Individual PAHs are specifically used for scientific and biomedical research; however, many mixtures used in industry such as coal tar, creosote, and asphalt contain PAHs. Coal tar is also used as a treatment for skin conditions such as dermatitis, psoriasis, and eczema (NTP, 2004).

Primary sources of exposure in the U.S. population include inhalation of polluted air, wood smoke and tobacco smoke, and ingestion of foods that normally contain microgram amounts of PAHs (NTP, 2004; ATSDR, 1995). Background levels of representative PAHs in urban air are reported to range from 0.15 - 19.3 ng/m<sup>3</sup> (ATSDR, 1995). Inhalation exposures to PAHs may occur through inhalation of PAH vapors, or, more likely, inhalation of particles with PAHs adsorbed to their surfaces.

PAHs are not considered an acute exposure hazard (HSDB, 2007). No reports could be located in the literature concerning acute exposures to PAHs in humans. The primary concern regarding PAH exposure is the potential for carcinogenicity after long-term high-level exposures. Fifteen PAHs are listed as being "reasonably anticipated to be human carcinogens" based on sufficient evidence of carcinogenicity in laboratory animals (NTP, 2004). The USEPA lists 16 PAHs in its IRIS database, with carcinogenicity rankings ranging from D (Not classifiable as to human carcinogenicity), to B2 (Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals) (IRIS, 2007). The USEPA uses a toxicity equivalence factor methodology to calculate cancer risk from PAH exposure based on the relative carcinogenic potency of six "carcinogenic PAHs" compared to that of benzo[a]pyrene. The seven carcinogenic PAHs (Based on animal

studies) utilized in USEPA risk assessment methodology are presented in the table below (USEPA, 2007)

Compound	TEF
Benzo(a)pyrene	1.0
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1.0
Indeno(1,2,3-c,d)pyrene	0.1

The International Agency for Research on Cancer (IARC) has classified benzo[a]pyrene as a known human carcinogen based on mechanistic data (IARC, 2006). Exposure to high levels of PAHs can also cause developmental and immunological toxicities in laboratory animals; however, there is no evidence of this occurring in humans (ATSDR, 1995).

PAHs are genotoxic compounds, i.e. they are capable of damaging genetic material. PAHs themselves are not carcinogenic. They must be metabolized in the body to reactive metabolites that can interact with cellular molecules and DNA. It is believed that genetic damage caused by PAH metabolites leads to the carcinogenic effects seen in laboratory animals.

PAHs have been demonstrated to cause a number of different tumor types in laboratory animals. Oral exposure to PAHs has resulted in tumors at various sites, including the stomach, lungs, liver, and breast. Dermal application of PAHs results in skin tumors, and inhalation exposure has induced the formation of lung tumors in laboratory animals. The evidence of PAH-induced cancer in humans is inadequate (NTP, 2004). There is evidence of increased cancer risk in individuals with *long-term high-level occupational exposures* to PAH-containing mixtures (NTP, 2004; ATSDR, 1995); however, PAHs have not been clearly identified as the causative agent (ATSDR, 1995).

### 3.0 Exposure Standards and Guidelines

Various agencies and organizations have developed short-term exposure guidelines and standards specific for CO and PM in the workplace and in the general public. These

values are developed to protect workers and the general public from overexposures. Occupational exposure guidelines and standards for the chemicals of interest are discussed in Section 3.1. Community exposure guidelines are discussed in Section 3.2. There are currently no short-term exposure values for PAHs.

### 3.1 Occupational Exposure Standards and Guidelines

The Occupational Safety and Health Administration (OSHA) set workplace standards to protect the safety and health of workers (Table 3.1). The American Conference of Governmental Industrial Hygienists (ACGIH) has also established exposure guidelines to protect workers from hazards on the job (Table 3.1). A summary of these occupational standards and guidelines for CO and PM is provided in Table 3.1. A list of exposure value definitions can be viewed in Appendix B.

**Table 3.1 Occupational Exposure Standards and Guidelines\***

Exposure Agency**	Carbon Monoxide (ppm)	Particulate Matter (mg/m <sup>3</sup> )
OSHA PEL-TWA <sup>a</sup>	50	NA
ACGIH TLV-TWA <sup>b</sup>	25	10

\*(ACGIH, 2007b)

- a. OSHA PEL-TWA = The Permissible concentration in air of a substance that shall not be exceeded in any 8 – hour work shift of a 40 – hour work week. (OSHA 29 CFR: 1910.1000).
- b. ACGIH TLV-TWA = The time-weighted average concentration for a conventional 8-hour workday and a 40 hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect (ACGIH, 2007a).

### 3.2 Community Exposure Guidelines

The American Industrial Hygiene Association (AIHA) establishes Emergency Response Planning Guidelines (ERPGs) to protect communities from the adverse effects of chemicals. The Environmental Protection Agency has established Acute Exposure Guidance Levels (AEGLs) for the same purpose. The Department of Energy's (DOE) Subcommittee on Consequence Assessment and Protective Action (SCAPA) developed Temporary Emergency Exposure Limits (TEELs) and Protective Action Criteria (PAC) for over 1250 chemicals for which ERPGs have not been developed (Table 3.2). In cases where AEGL or ERPG values exist, SCAPA adopts the AEGL or ERPG values for the PAC-1, PAC-2, and PAC-3 values. Table 3.2 lists the TEEL, PAC, and ERPG values for CO.

**Table 3.2 Community Exposure Guidelines\***

<b>Exposure Guideline</b>	<b>Carbon Monoxide (ppm)</b>
TEEL-0 <sup>a</sup>	50
PAC-1 <sup>b</sup>	83
PAC-2 <sup>c</sup>	83
PAC-3 <sup>d</sup>	330
ERPG-1 <sup>e</sup>	200
ERPG-2 <sup>f</sup>	350
ERPG-3 <sup>g</sup>	500

\*(DOE/SCAPA, 2007; AIHA, 2007)

A=Based on AEGL value

- a. TEEL-0 = The threshold concentration (measured as the peak 15-minute TWA) below which most people will experience no appreciable risk of health effects (Craig et al, 2000).
- b. PAC-1 = The maximum concentration in air (measured as the peak 15-minute TWA) below which it is believed nearly all individuals could be exposed without experiencing other than mild transient health effects (DOE/SCAPA, 2007).
- c. PAC-2 = The maximum concentration in air (measured as the peak 15-minute TWA) below which it is believed nearly all individuals could be exposed without experiencing or developing irreversible or other serious health effects or symptoms that could impair their abilities to take protective action (DOE/SCAPA, 2007).
- d. PAC-3 = The maximum concentration in air (measured as the peak 15-minute TWA) below which it is believed nearly all individuals could be exposed without experiencing or developing life-threatening health effects (DOE/SCAPA, 2007).
- e. ERPG-1 = The maximum airborne concentration below which it is believed nearly all individuals can be exposed for up to one hour without experiencing other than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor (AIHA,2007)
- f. ERPG-2 = The maximum airborne concentration below which it is believed nearly all individuals can be exposed for up to one hour without experiencing or developing irreversible or other serious adverse health effects or symptoms that could impair an individual's ability to take protective action (AIHA,2007).
- g. ERPG-3 = The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects (AIHA, 2007)

h. NE = not established

The AIHA Emergency Response Planning Committee typically relies on ERPG-2 values to make decisions regarding evacuation areas. The ERPG-2 represents a level that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action (AIHA, 2007). Worst-case comparisons to the most conservative community exposure guidelines, namely the TEEL-0, were made in this case to determine if the exposure risk is low enough to dismiss the possibility of toxicological concern. However, it is not legitimate to use a worst-case scenario to prove that there in fact exists a toxicological concern in a real population. A list of exposure value definitions can be viewed in Appendix B.

The EPA and the World Health Organization (WHO) have established specific guidelines for exposure to fire smoke PM that take into account the unique composition of fire smoke compared to not-otherwise-specified PM to which the occupational standards and guidelines apply. As shown in Table 3.3, these guidelines also account for exposure to susceptible individuals and make recommendations for limitation of outdoor activities when fire smoke PM concentrations reach certain levels. It is important to note that these recommendations anticipate PM exposures at sustained average PM levels over a 24-hour period.

**Table 3.3 Action Levels and Associated Recommendations for Particulate Matter Associated with Fire Smoke**

<b>Levels of Health Concern</b>	<b>PM<sub>10</sub> Levels (mg/m<sup>3</sup>, 24-hour average) EPA</b>	<b>EPA (1999) and WHO (1999) Cautionary Statements*</b>
Good	0 – 0.054	None
Moderate	0.055 – 0.154	<ul style="list-style-type: none"> <li>Unusually sensitive people should consider reducing prolonged or heavy exertion. (EPA)</li> <li>Mild aggravation of symptoms (0.150 mg/m<sup>3</sup> – WHO)</li> </ul>
Unhealthy for Sensitive Groups	0.155 – 0.254	<ul style="list-style-type: none"> <li>People with heart or lung disease, older adults, and children should reduce prolonged or heavy exertion. (EPA)</li> </ul>
Unhealthy	0.255 – 0.354	<ul style="list-style-type: none"> <li>People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion. (EPA)</li> <li>Significant aggravation of symptoms and decreased exercise tolerance in susceptible groups. (350 µg/m<sup>3</sup> – WHO)</li> </ul>
Very Unhealthy	0.355 – 0.424	<ul style="list-style-type: none"> <li>People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion. (EPA)</li> </ul>
Hazardous	0.425 – 0.604	<ul style="list-style-type: none"> <li>People with heart or lung disease, older adults, and children should remain indoors and keep activity levels low. Everyone else should avoid all physical activity outdoors. (EPA)</li> <li>Premature onset of certain diseases, significant aggravation of symptoms, and decrease exercise tolerance in healthy persons. (0.500 mg/m<sup>3</sup> – WHO)</li> <li>Premature death in the ill and elderly. Healthy people will experience adverse symptoms that affect their activity. (0.600 mg/m<sup>3</sup> – WHO)</li> <li>Acute and incapacitating symptoms experienced by significant portions of population. (0.800 mg/m<sup>3</sup> – WHO)</li> </ul>

\*USEPA, 1999; Schwela, 1999

## **4.0 Air Monitoring and Sampling Methods**

Real-time air monitoring (Section 4.1) and analytical air sampling (Section 4.2) were performed throughout the response. Air monitoring locations were selected to represent potential receptors within the incident area and on the perimeter of the incident area.

### **4.1 Real-Time Air Monitoring**

During the response, real-time air monitoring equipment was used to determine the ambient air concentrations of VOCs, LEL, O<sub>2</sub>, NO<sub>2</sub>, CO, and PM. The term “real-time” refers to direct reading instruments that allow nearly instantaneous determinations of a chemical concentration in air. Real-time measurements provide immediate information for worker and community exposure scenarios and, with the use of appropriate site safety measures, help prevent overexposures. Real-time measurements are not directly

comparable to OSHA or ACGIH 8-hour TWA values or to community exposure standards or guidelines. Instantaneous real-time readings do not necessarily represent conditions experienced throughout the workday and can substantially underestimate or overestimate exposures potentially experienced by workers. Direct reading instruments perform sampling and analyses within the instrument and concentration readings can usually be obtained immediately. These instruments have fast response times and can follow rapid changes in concentration. Many are capable of storing continuous readings and displaying averages for selected time intervals.

Three real-time air monitoring instruments were used to determine air quality. These instruments included RAE Systems, Inc. MultiRAE Plus and AreaRAE and the Aerosol Monitor (AM 510). The real-time air monitoring equipment used is characterized as photo ionization detectors (PIDs) (Section 4.1.1), LEL sensor (Section 4.1.2), chemical specific sensors for CO and NO<sub>2</sub> (Section 4.1.3), O<sub>2</sub> sensor (Section 4.1.5), and aerosol monitor (Section 4.1.6). Detection limits for the real-time air monitoring equipment are provided in Table 4.1.

**Table 4.1 Real-Time Air Monitoring Equipment Summary**

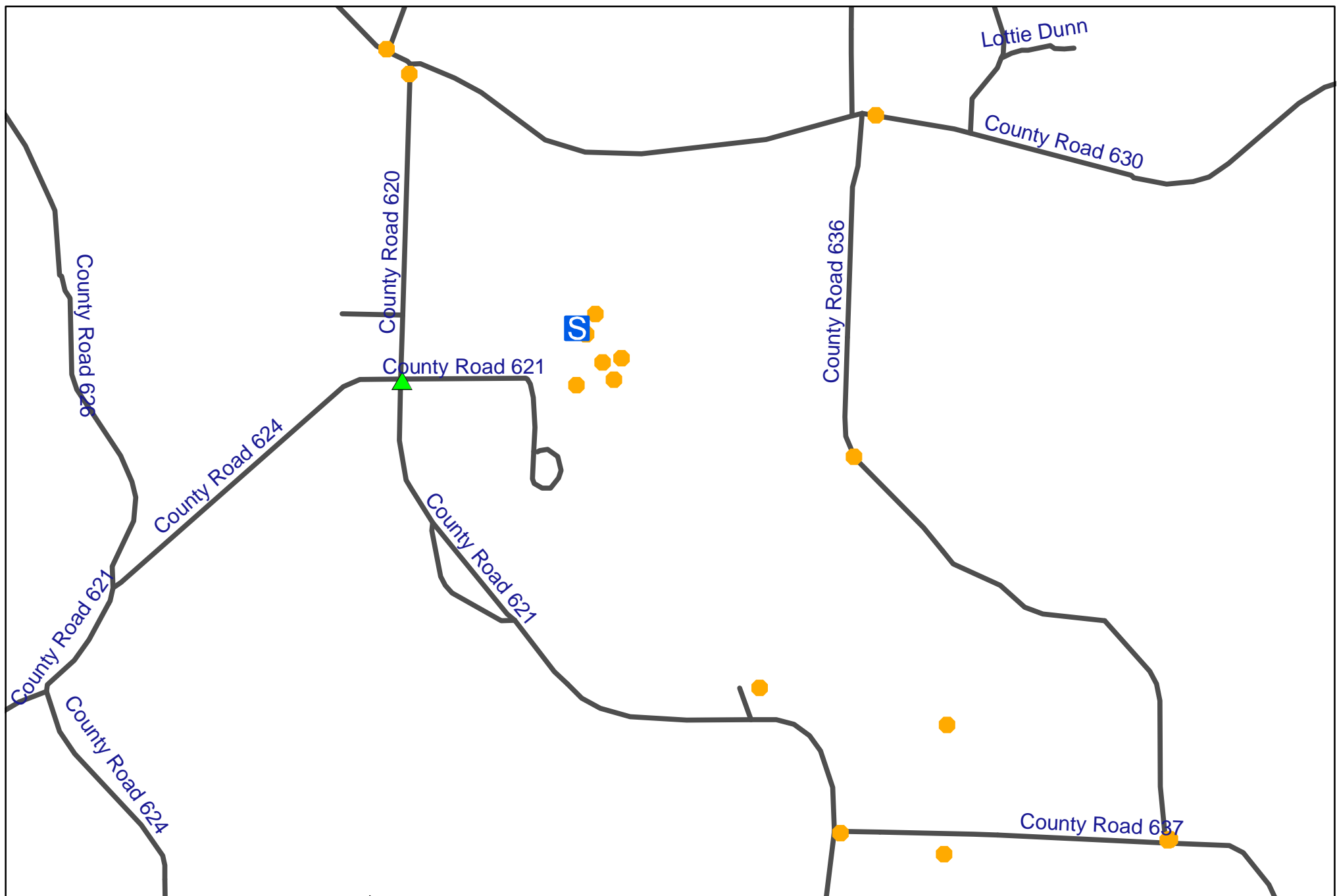
<b>Instrument</b>	<b>Analyte</b>	<b>Detection Limit</b>	<b>Correction Factor</b>
AM510 Aerosol Monitor	PM	<0.001 mg/m <sup>3</sup>	NA
MultiRAE Plus CO sensor	CO	< 1 ppm	NA
MultiRAE Plus LEL sensor	Flammability	< 1 %	1.6*
MultiRAE Plus O <sub>2</sub> sensor	O <sub>2</sub>	<0.1 %	NA
MultiRAE Plus NO <sub>2</sub> sensor	NO <sub>2</sub>	<0.1 ppm	NA
AreaRAE and MultiRAE Plus PID	VOC	0.1 ppm	1

\* specific for propane

Real-time instruments used during the response were calibrated daily according to manufacturer recommendations. PIDs were zeroed using zero-grade air or at background site locations.

All real-time readings were documented either in bound notebooks or on CTEH field forms. These efforts provided continuous recorded monitoring and provided audible and visual alarms to warn of action level exceedances.

Real-time sampling was performed continuously through the duration of the response. Real-time measurements were collected in the work areas, on the site perimeter, and in the surrounding community (Figure 4.1).



0 0.1 0.2 0.4 Miles

#### Legend



Incident Location



Command Center



Real-Time Locations

**Real-Time Air Monitoring Locations  
Propane Fire Investigation  
Clarke County Mississippi  
November 1-3, 2007**



Figure 4.1 Manually Logged Real-Time Air Monitoring Locations

#### **4.1.1 Photo Ionization Detector**

RAE Systems, Inc. MultiRAE Plus and AreaRAE PIDs were used to monitor ambient air concentrations of VOCs. Photo ionization is a nondestructive technique that is somewhat specific through selection of ultra-violet (UV) lamps of varying energies. PIDs use high energy UV light from a lamp housed within the detector to provide energy needed for ionizing VOCs. Ions are collected in an ionization chamber with accelerating and collecting electrodes designed to measure current. Current produced during VOC ionization is proportional to VOC concentrations. PIDs respond to most VOCs in the air. If there is more than one VOC present, then the reading displayed by the instrument is considered the total concentration of VOCs. The PID can be used to monitor concentrations of chemicals by applying a chemical-specific correction factor to the displayed VOC reading. The MultiRAE Plus and AreaRAE are typically calibrated with a known concentration of isobutylene gas. The response of a single VOC is relative to the PID's response to isobutylene. The MultiRAE Plus and AreaRAE PID were calibrated prior to use or as necessary, according to the manufacturer's recommendations. The manually logged real-time air monitoring summary can be found in Appendix C.

PIDs are not specific for any chemical. The presence of atmospheric humidity and other VOCs may be problematic while using the detectors. PIDs often need to account for background readings and need to be coupled with other real-time instruments.

#### **4.1.2 LEL Sensor**

MultiRAE Plus Lower Explosive Limit (LEL) sensors were used to monitor for flammable atmospheres. The LEL sensor is made up of coils of platinum wire embedded within a catalytic bead. Oxidation of combustible gases and vapors releases heat, changing the resistance of one element with respect to the other. This change is detected as an out-of-balance voltage in a bridge circuit, and the output signal is used for the detection of combustible gases and vapors.

#### **4.1.3 Chemical Sensors**

The MultiRAE Plus air monitor used during the response was equipped with electrochemical sensors specific for CO and NO<sub>2</sub>. The sensor has a rapid response time (< 30 sec). An electrochemical sensor consists of a diffusion barrier, a sensing-electrode, a counter-electrode and an electrolyte. The sensor works by reacting with specific gases and transmitting an electrical signal that is proportional to the gas concentration. The resolution of these sensors is an added quality that makes these instruments useful when determining air concentrations.

#### **4.1.4 Oxygen Sensor**

MultiRAE Plus O<sub>2</sub> sensors were used to monitor for O<sub>2</sub> deficient or O<sub>2</sub> rich atmospheres. The O<sub>2</sub> sensor is a capillary sensor that is unaffected by ambient pressure and thus measures the true volume percent of O<sub>2</sub>.

#### **4.1.5 Aerosol Monitor**

Aerosol monitors were used to monitor PM. PM was measured using a real-time TSI Aerosol Monitor Model AM-510. The AM-510 Aerosol Monitor is a portable, battery-operated, laser-photometer that measures airborne dust concentrations. The sensing mechanism consists of a laser diode directed at the aerosol stream. Scattered light is collected with optics and a photodetector perpendicular to the light beam. The intensity of the scattered light is a function of the particle mass concentration.

#### **4.1.6 Radio Telemetry Systems**

Radio telemetry systems were combined with computer databasing capabilities to provide continuous recorded monitoring. The AreaRAE transmits data obtained from real-time instruments within the unit. The system uses radio telemetry to communicate the status of the testing environment to a monitoring console where audible and visual alarms warn of hazardous conditions. In addition to the environmental alarming capability, concentrations are continuously transmitted to the monitoring console where they are stored and compiled for each location. The data can be easily accessed at any time from the monitoring console in a database or graphical format. The radio telemetry systems provide continuous monitoring and ensure proper record keeping. Real-time air monitoring using the AreaRAE was performed throughout designated work areas and in the surrounding communities. AreaRAE sampling locations were tracked and displayed using telemetered global positioning system (GPS) data. The data is recorded in Appendix C. Refer to Figure 4.1.6 for the map of the AreaRAE air monitoring locations.

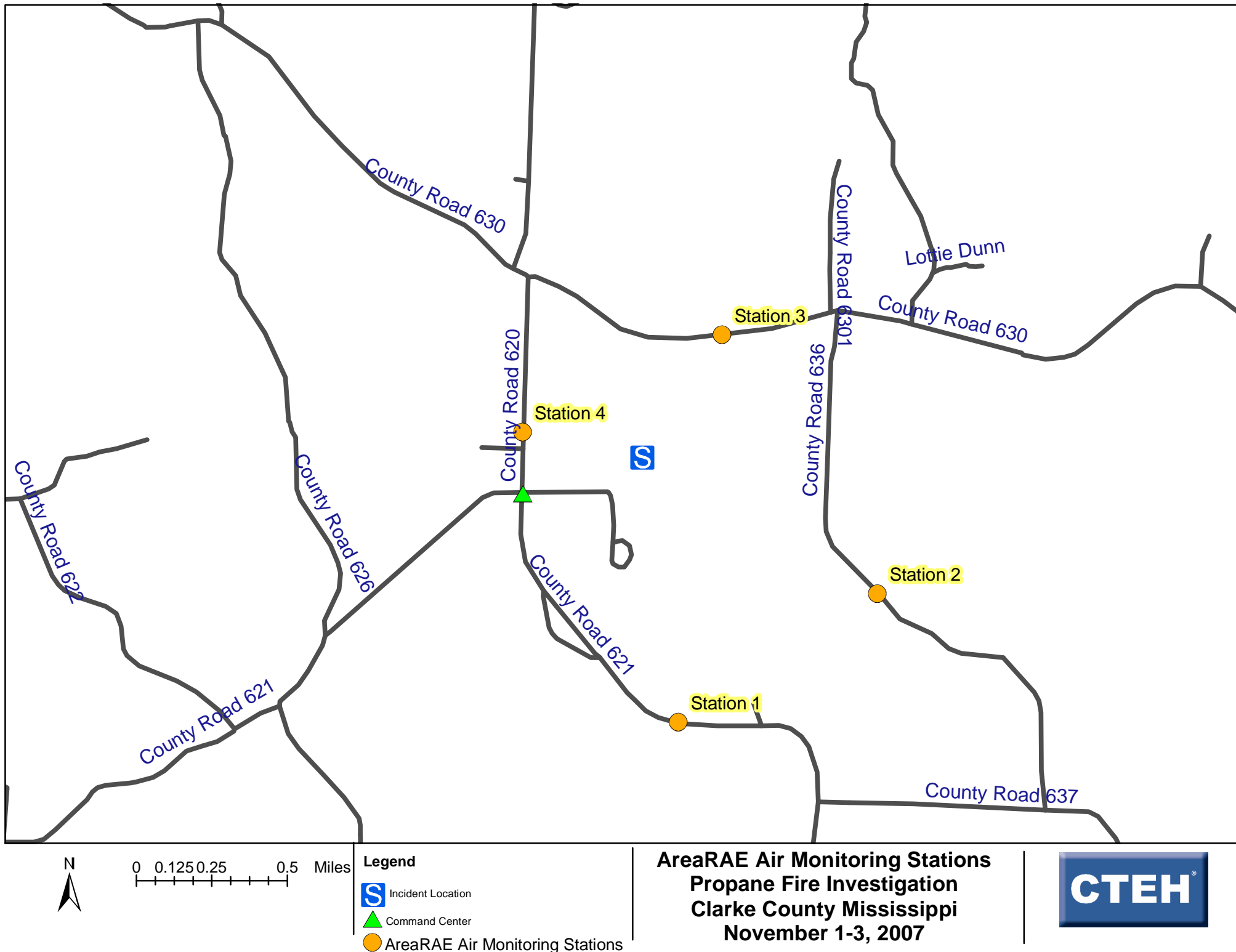


Figure 4.1.6 AreaRAE Air Monitoring Station Locations 18

## 4.2 Analytical Air Sampling

Analytical air samples were collected for VOCs plus tentatively identified compounds (TICs) and aromatic hydrocarbons. VOCs plus TICs were sampled according to modified OSHA method PV2120/EPA TO-15. PAH sampling was conducted according to modified NIOSH method 5506. A copy of the methods can be found in Appendix D and the detection limit summary in Appendix E. Analytical air sampling methods are summarized in Table 4.2.

**Table 4.2 Summary of Analytical Air Sampling Methods**

Method	Analyte	Sampling Media	Flow rate (mL/min)
Modified OSHA PV2120/TO15	VOCs + TICs	Minican	NA
Modified NIOSH 5506 (PAHs)	PAHs	ORBO & PTFE	2.77

PAH air sampling was conducted utilizing a sample collection device that pulls air across a medium and stabilizes chemicals for subsequent laboratory analysis (Huey 1996). Sampling devices were calibrated with a DryCal primary flow meter before and after each use. Fixed air sampling stations were established around the perimeter of the site (Figure 4.2). Analytical air sampling results collected around the perimeter of the incident site represent approximate 12-hour TWA concentrations. All air samples collected at the incident site were sent to Galson Laboratories, an AIHA-accredited laboratory, for subsequent analysis. As a field quality control measure, blank media was also submitted with the samples for laboratory analysis. Refer to Appendix F for analytical laboratory results.

Analytical air sampling for VOCs and TICs was conducted using Minicans. Minicans are 1,000 mL evacuated canisters attached to a 24-hour regulator. The Minicans were cleaned at the laboratory prior to field use. They have negative pressure and, when the regulator is attached, begin to fill up with air. Air is allowed in at a controlled rate through the regulator. The regulators were calibrated at Galson Laboratories to ensure that the flow rate was appropriate to collect a 24 hour sample. The analytical air sampling summary for VOCs + TICs can be found in Appendix G, and the analytical air sampling summary for PAHs can be found in Appendix H.

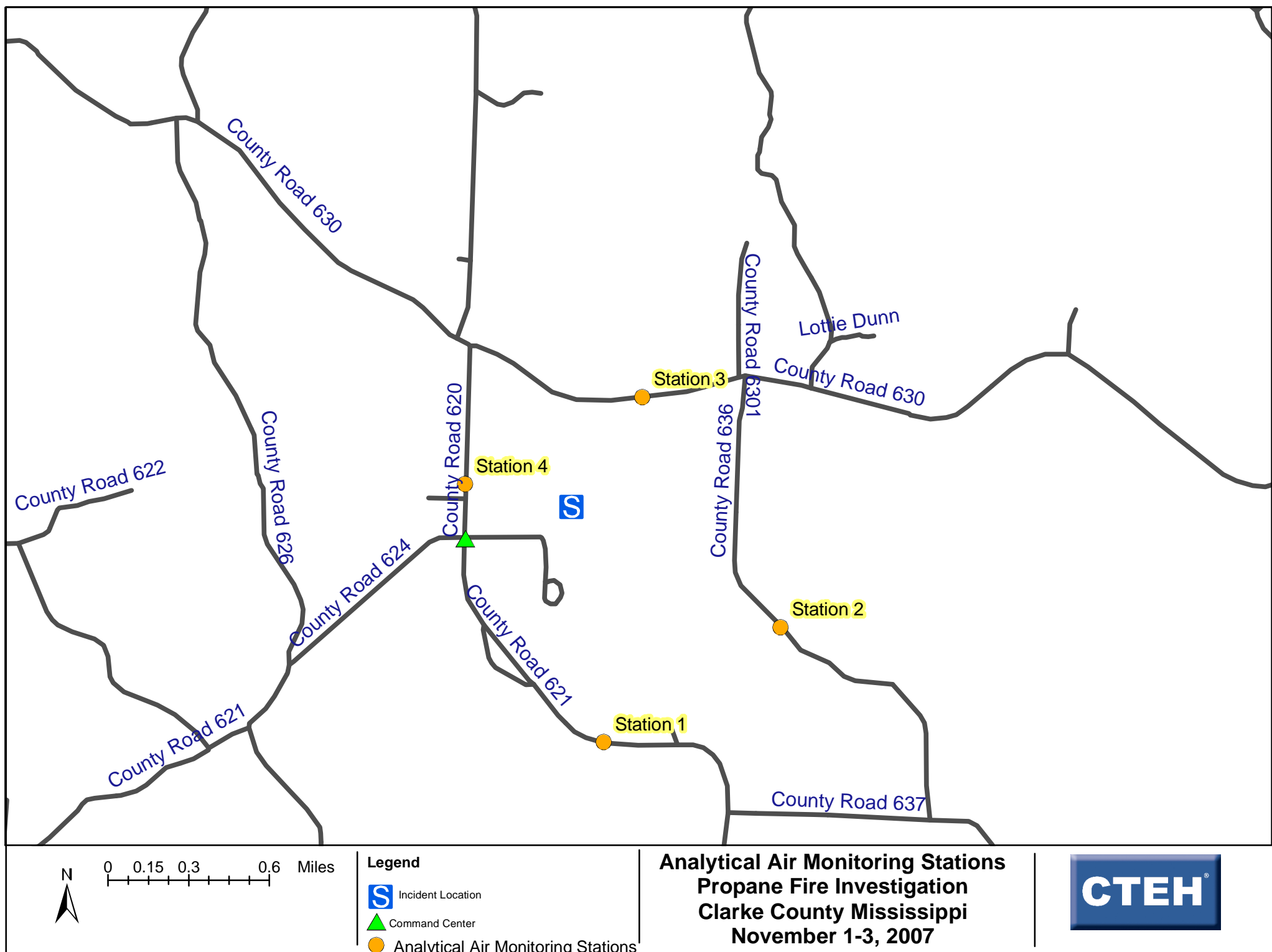


Figure 4.2 Analytical Air Sampling Station Locations

A CTEH Environmental Chemist conducted data verification on the analytical data. Data verification is the process evaluating the completeness, correctness, and conformance/compliance of a specific data set against the method, procedural, or contractual requirements (USEPA, 2002). The analytical data reviewed have been evaluated to determine whether the reported laboratory results are compliant with the requirements of the sampling and analysis methods and procedures used to generate these results; specifically, the results have been evaluated for compliance with holding time, sample preservation, sample preparation, and sample analysis procedures. Data verification was reported acceptable and the analytical data are usable. A complete review of the data verification report is available in Appendix I.

## **5.0 Summary of Air Monitoring Results**

Real-time air monitoring for VOCs, LEL, NO<sub>2</sub>, CO, O<sub>2</sub>, and PM began at approximately 01:33 CDT on November 2, 2007, to determine if these chemical concentrations were elevated in the work area or in the community as a result of the propane fire. A total of 300 NO<sub>2</sub>, 407 CO, 409 VOCs, 409 LEL, and 363 O<sub>2</sub> readings were manually recorded with the MultiRAE Plus. A total of 108 PM readings were manually recorded with the AM510 aerosol monitor. CO and PM concentrations were highest around immediate perimeter of the propane pipe fire, but it was concluded that the elevated readings reflected the background fire in surrounding woods and shrubs. Of the 407 CO readings, there were four detections; however, the concentrations of CO never exceeded the TEEL-0 (50 ppm), or the ACGIH TLV-TWA (25 ppm). The 108 readings for PM ranged from 0.024 to 2.39 mg/m<sup>3</sup>. All sustained PM elevations above fire smoke exposure guidelines were short-term in duration, were located in the work area very near to the pipeline breach, and resulted primarily from smoldering trees and brush. However, there were no sustained elevations of PM concentrations outside of the work area in the community. All other recorded readings remained below instrument detection limits. Real-time air monitoring was concluded on November 3, 2007 at 00:58 CDT. A complete summary of real-time air monitoring results is provided in Appendix C.

In support of real-time air monitoring, analytical air sampling was conducted at four stations surrounding the work area. A total of eight analytical samples and one media blank were collected at these stations and sent to Galson Laboratories for subsequent analysis. Four samples were collected for each for PAH and VOC + TIC analysis. Of the four samples analyzed by modified NIOSH 5506 for PAHs, there was one detect for acenaphthene at 0.000068 ppm. Additionally, acenaphthylene was detected at 0.46 micrograms (µg) in the media blank, but the result might be attributed to laboratory contamination. Furthermore, there were 11 VOCs detects for acetone, isopropyl alcohol, methylene chloride, and toluene ranging from 6 parts per billion volume (ppbv) to 83 ppbv in the four samples analyzed by modified OSHA PV 2120/EPA TO-15 analysis. All

of these chemicals detected are considered to be common lab contaminants. In addition, there was one TIC identified as acetaldehyde at an estimated concentration of 9.1 ppbv. There were no other volatiles identified. All analytical results were well below the most conservative occupational and/or community exposure guidelines.

## **6.0 Conclusion**

Based on a review of the air monitoring and sampling data and current toxicological literature, CTEH concludes that airborne concentrations of the chemicals of interest as a result of the propane explosion and subsequent fire in Clarke County, Mississippi, did not exceed applicable occupational exposure guidelines for emergency responders and other persons working in the work area. Furthermore, CTEH did not observe any sustained elevations of the levels of any of the chemicals of interest in the surrounding community during the time that real-time and analytical air monitoring was being performed.

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## **Appendix A**

### **Work Site Photographs**



AreaRAE & Pump Station 1



AreaRAE & Pump Station 1



AreaRAE & Pump Station 2



AreaRAE & Pump Station 2



AreaRAE & Pump Station 3



AreaRAE & Pump Station 3



AreaRAE & Pump Station 4

## **Appendix B**

### **Exposure Value Definitions**

## Definitions:

OSHA/ACGIH:

**OSHA PEL-TWA** = The Permissible concentration in air of a substance that shall not be exceeded in any 8 – hour work shift of a 40 – hour work week. (OSHA 29 CFR: 1910.1000).

**OSHA PEL-Ceiling** = The exposure limit that shall at no time be exceeded. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15 – minute time weighted average exposure, which shall not be exceeded at any time during the working day (OSHA 29 CFR: 1910.1000).

**ACGIH TLV-TWA** = The time-weighted average concentration for a conventional 8-hour workday and a 40 hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect (ACGIH, 2007a).

**ACGIH TLV-STEL** = The 15 minute TWA exposure that should not be exceeded at any time during a workday, even if the 8-hour TWA is within the TLV-TWA. The TLV-STEL is the concentration to which it is believed that workers can be exposed continuously for a short period of time without suffering from 1) irritation, 2) chronic or irreversible tissue damage, 3) dose-rate dependent toxic effects, or 4) narcosis of sufficient degree to increase the likelihood of accidental injury, impaired self rescue, or materially reduced work efficiency. Exposures above the TLV-TWA up to the TLV-STEL should be less than 15 minutes, should occur not more than 4 times per day, and there should be at least 60 minutes between successive exposures in this range. (ACGIH, 2007a).

AIHA ERPGs:

**ERPG-1** = The maximum airborne concentration below which it is believed nearly all individuals can be exposed for up to one hour without experiencing other than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor (AIHA, 2007).

**ERPG-2** = The maximum airborne concentration below which it is believed nearly all individuals can be exposed for up to one hour without experiencing or developing irreversible or other serious adverse health effects or symptoms that could impair an individual's ability to take protective action (AIHA, 2007).

**ERPG-3** = The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects (AIHA, 2007).

DOE/SCAPA TEELs:

**TEEL-0** = The threshold concentration (measured as the peak 15-minute TWA) below which most people will experience no appreciable risk of health effects (DOE/SCAPA 2007).

**TEEL-1** = Temporary Emergency Exposure Limit – 1. Same as ERPG-1. (DOE/SCAPA 2007)

**TEEL-2** = Temporary Emergency Exposure Limit – 2. Same as ERPG-2. (DOE/SCAPA 2007).

**TEEL-3** = Temporary Emergency Exposure Limit – 3. Same as ERPG-3 (DOE/SCAPA 2007).

## **Appendix C**

### **Real-Time Air Monitoring Summary**

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	1:33:00	Work Area Reading 1 N31.92113, W-88.53246	MR+	CO	<1	ppm	<1	ppm	slight smoky odor	JP/PN
11/2/2007	1:40:00	Work Area Reading 2 N31.92134, W-88.53102	MR+	CO	7	ppm	<1	ppm	slight smoky odor, directly downwind	JP/PN
11/2/2007	1:49:00	Work Area Reading 3 N31.92206, W-88.53075	MR+	CO	24	ppm	<1	ppm	slight smoky smell	JP/PN
11/2/2007	1:57:00	Work Area Reading 4 N31.92348, W-88.53106	MR+	CO	24	ppm	<1	ppm	moderate smoke, North 250 ft from fire, smoldering from bush	JP
11/2/2007	1:59:00	Work Area Reading 5 N31.92360, W-88.53181	MR+	CO	12	ppm	<1	ppm	200ft due North of fire, slight smoky odor	JP
11/2/2007	2:05:00	Work Area Reading 6 N31.92281, W-88.53214	MR+	CO	<1	ppm	<1	ppm	200ft West of fire, slight smoky odor	JP
11/2/2007	2:13:00	Work Area Reading 7 N31.92190, W-88.53148	MR+	CO	<1	ppm	<1	ppm	slight odor	JP
11/2/2007	4:21:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	4:32:00	Pump Station 3 Address 8520 on CR 636 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	4:39:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	4:47:00	Pump Station 1 Address 1719 on CR 620 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	smoky odor, visible smoke	CRM/DC
11/2/2007	5:08:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	smoky odor, slight visible smoke	CRM/DC
11/2/2007	5:14:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:19:00	Chicken houses CR 637 N31.90602, W-88.51786	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:23:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:33:00	Address 796 on CR 636 N31.91901, W-88.52170	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:38:00	Intersection of CR 630 & 636 Next to 4 police vehicles N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	5:44:00	Intersection of CR 630 & 632 Next to 2 police vehicles N31.93201, W-88.54010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	6:44:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no visible smoke, strong odor	CS/CRM
11/2/2007	6:47:00	Evacuated Community Next to police road block N31.91027, W-88.52550	MR+	CO	<1	ppm	<1	ppm	no visible smoke, mild odor	CS/CRM
11/2/2007	6:55:00	Chicken houses CR 637 N31.90602, W-88.51786	MR+	CO	<1	ppm	<1	ppm	no visible smoke, mild odor	CS/CRM
11/2/2007	6:58:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	CO	<1	ppm	<1	ppm	no visible smoke, no odor	CS/CRM
11/2/2007	7:02:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no visible smoke, no odor	CS/CRM
11/2/2007	7:06:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:09:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:11:00	Intersection of CR 630 & 632 Near police road block N31.93201, W-88.54010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:19:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	slight odor, no visible smoke	CS/CRM
11/2/2007	7:21:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	slight odor, no visible smoke	CS/CRM
11/2/2007	7:25:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	CO	<1	ppm	<1	ppm	very slight odor, no visible smoke	CS/CRM
11/2/2007	7:28:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:32:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:33:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:38:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CS/CRM

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	7:58:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	mild smoke odor, no visible smoke	JW
11/2/2007	8:03:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:06:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:12:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:16:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:19:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:27:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:32:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:34:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:39:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	mild smoke odor, no visible smoke	JW
11/2/2007	8:43:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	8:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:01:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:09:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:14:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:20:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	9:25:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:32:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:35:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:46:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:50:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	9:54:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	10:01:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	10:27:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	10:53:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	11:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	11:40:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	11:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	11:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	11:57:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:02:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:08:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:10:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW

**Center for Toxicology and Environmental Health  
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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	12:12:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:15:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:20:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:27:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:33:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:45:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:49:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	12:52:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:04:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:34:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:41:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:49:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:49:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:50:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:51:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	13:52:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:52:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:53:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:54:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:55:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:55:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

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**11-7-2007**

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11/2/2007	13:56:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
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11/2/2007	13:56:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

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11/2/2007	13:56:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:56:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:57:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:58:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:59:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:59:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:59:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:59:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	13:59:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	CO	<1	ppm	<1	ppm	evacutaed community	AR Station
11/2/2007	14:00:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	14:04:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	14:10:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	14:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	14:18:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	14:22:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	14:33:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	14:52:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	15:15:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	15:32:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	15:36:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	15:40:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	15:42:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	15:45:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	JW
11/2/2007	23:56:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:02:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:12:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:19:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:21:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:28:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:31:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:36:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:41:00	Pump Station 1 N31.91034, W-88.53010	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:49:00	Pump Station 2 N31.91676, W-88.51908	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:54:00	Pump Station 3 N31.92901, W-88.52818	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/3/2007	0:58:00	Pump Station 4 N31.92409, W-88.53929	MR+	CO	<1	ppm	<1	ppm	no odor, no visible smoke	CM/CS
11/2/2007	1:33:00	Work Area Reading 1 N31.92113, W-88.53246	MR+	LEL	<1	%	<1	%	slight smoky odor	JP/PN
11/2/2007	1:40:00	Work Area Reading 2 N31.92134, W-88.53102	MR+	LEL	<1	%	<1	%	slight smoky odor, directly downwind	JP/PN
11/2/2007	1:49:00	Work Area Reading 3 N31.92206, W-88.53075	MR+	LEL	<1	%	<1	%	slight smoky smell	JP/PN
11/2/2007	1:57:00	Work Area Reading 4 N31.92348, W-88.53106	MR+	LEL	<1	%	<1	%	moderate smoke, North 250 ft from fire, smoldering from bush	JP
11/2/2007	1:59:00	Work Area Reading 5 N31.92360, W-88.53181	MR+	LEL	<1	%	<1	%	200ft due North of fire, slight smoky odor	JP
11/2/2007	2:05:00	Work Area Reading 6 N31.92281, W-88.53214	MR+	LEL	<1	%	<1	%	200ft West of fire, slight smoky odor	JP
11/2/2007	2:13:00	Work Area Reading 7 N31.92190, W-88.53148	MR+	LEL	<1	%	<1	%	slight odor	JP
11/2/2007	4:21:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	4:32:00	Pump Station 3 Address 8520 on CR 636 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	4:39:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	4:47:00	Pump Station 1 Address 1719 on CR 620 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	smoky odor, visible smoke	CRM/DC
11/2/2007	5:08:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	smoky odor, slight visible smoke	CRM/DC
11/2/2007	5:14:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	5:19:00	Chicken houses CR 637 N31.90602, W-88.51786	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	5:23:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	5:33:00	Address 796 on CR 636 N31.91901, W-88.52170	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	5:38:00	Intersection of CR 630 & 636 Next to 4 police vehicles N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	5:44:00	Intersection of CR 630 & 632 Next to 2 police vehicles N31.93201, W-88.54010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CRM/DC
11/2/2007	6:44:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no visible smoke, stong odor	CS/CRM
11/2/2007	6:47:00	Evacuated Community Next to police road block N31.91027, W-88.52550	MR+	LEL	<1	%	<1	%	no visible smoke, mild odor	CS/CRM
11/2/2007	6:55:00	Chicken houses CR 637 N31.90602, W-88.51786	MR+	LEL	<1	%	<1	%	no visible smoke, mild odor	CS/CRM
11/2/2007	6:58:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	LEL	<1	%	<1	%	no visible smoke, no odor	CS/CRM
11/2/2007	7:02:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no visible smoke, no odor	CS/CRM
11/2/2007	7:06:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:09:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:11:00	Intersection of CR 630 & 632 Near police road block N31.93201, W-88.54010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:19:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	slight odor, no visible smoke	CS/CRM
11/2/2007	7:21:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	slight odor, no visible smoke	CS/CRM
11/2/2007	7:25:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	LEL	<1	%	<1	%	very slight odor, no visible smoke	CS/CRM
11/2/2007	7:28:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:32:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:33:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM
11/2/2007	7:38:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CS/CRM

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	7:58:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	mild smoke odor, no visible smoke	JW
11/2/2007	8:03:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:06:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:12:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:16:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:19:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:27:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:32:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:34:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:39:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	mild smoke odor, no visible smoke	JW
11/2/2007	8:43:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	8:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:01:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:09:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:14:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:20:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	9:25:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:32:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:35:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:46:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:50:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	9:54:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	10:01:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	10:27:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	10:53:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	11:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	11:30:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	11:40:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	11:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	11:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	11:57:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:02:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:08:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	12:10:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:12:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:15:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:20:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:27:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:33:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:45:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:49:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	12:52:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:04:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:34:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:41:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:49:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:49:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:50:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:51:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	13:52:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:52:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:53:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:53:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:53:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:54:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:55:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:55:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:55:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:56:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:56:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:56:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:56:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:56:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:56:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:56:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:56:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:56:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:56:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:56:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
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11/2/2007	13:57:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:57:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:58:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:59:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:59:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:59:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:59:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	13:59:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	LEL	<1	%	<1	%	evacutaed community	AR Station
11/2/2007	14:00:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	14:04:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	14:10:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	14:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	14:18:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	14:22:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	14:33:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	14:52:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	15:15:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	15:32:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	15:36:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	15:40:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	15:42:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	15:45:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	JW
11/2/2007	23:56:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:02:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:12:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:19:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:21:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:28:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:31:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:36:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:41:00	Pump Station 1 N31.91034, W-88.53010	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:49:00	Pump Station 2 N31.91676, W-88.51908	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/3/2007	0:54:00	Pump Station 3 N31.92901, W-88.52818	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/3/2007	0:58:00	Pump Station 4 N31.92409, W-88.53929	MR+	LEL	<1	%	<1	%	no odor, no visible smoke	CM/CS
11/2/2007	13:49:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:55:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:56:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:56:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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11/2/2007	13:57:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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11/2/2007	13:58:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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11/2/2007	13:58:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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11/2/2007	13:58:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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11/2/2007	13:58:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
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11/2/2007	13:58:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	NO2	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	7:58:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	mild smoke odor, no visible smoke	JW
11/2/2007	8:03:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW

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11/2/2007	8:06:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:12:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:16:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:19:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:27:00	Pump Station 3 N31.92901, W-88.52818	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:32:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:34:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:39:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	mild smoke odor, no visible smoke	JW
11/2/2007	8:43:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	8:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:01:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:09:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:14:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:20:00	Pump Station 3 N31.92901, W-88.52818	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:25:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:32:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:35:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	9:46:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:50:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	9:54:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	10:01:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	10:27:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	10:53:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	11:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	11:30:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	11:40:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	11:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	11:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	11:57:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:02:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:08:00	Pump Station 3 N31.92901, W-88.52818	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:10:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:12:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:15:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	12:20:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:27:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:33:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:45:00	Pump Station 3 N31.92901, W-88.52818	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:49:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	12:52:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:04:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:34:00	Pump Station 3 N31.92901, W-88.52818	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:41:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:49:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:49:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:50:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:51:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	13:52:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:52:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:53:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:54:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:55:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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11/2/2007	13:55:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:55:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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11/2/2007	13:56:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:56:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:56:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:57:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:58:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:59:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:59:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:59:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:59:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	13:59:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	O2	20.9	%	<0.1	%	evacutaed community	AR Station
11/2/2007	14:00:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:04:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:10:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:18:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:22:00	Pump Station 3 N31.92901, W-88.52818	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:33:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	14:52:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	15:15:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	15:32:00	Pump Station 2 N31.91676, W-88.51908	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	15:36:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	15:40:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	15:42:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	15:45:00	Pump Station 1 N31.91034, W-88.53010	MR+	O2	20.9	%	<0.1	%	no odor, no visible smoke	JW
11/2/2007	1:33:00	Work Area Reading 1 N31.92113, W-88.53246	AM510	PM	0.062	mg/m3	<0.001	mg/m3	slight smoky odor	JP/PN
11/2/2007	1:40:00	Work Area Reading 2 N31.92134, W-88.53102	AM510	PM	0.357	mg/m3	<0.001	mg/m3	slight smoky odor, directly downwind	JP/PN
11/2/2007	1:49:00	Work Area Reading 3 N31.92206, W-88.53075	AM510	PM	0.0538	mg/m3	<0.001	mg/m3	slight smoky smell	JP/PN
11/2/2007	1:57:00	Work Area Reading 4 N31.92348, W-88.53106	AM510	PM	2.39	mg/m3	<0.001	mg/m3	moderate smoke, North 250 ft from fire, smoldering from bush	JP
11/2/2007	1:59:00	Work Area Reading 5 N31.92360, W-88.53181	AM510	PM	0.237	mg/m3	<0.001	mg/m3	200ft due North of fire, slight smoky odor	JP
11/2/2007	2:05:00	Work Area Reading 6 N31.92281, W-88.53214	AM510	PM	1.75	mg/m3	<0.001	mg/m3	200ft West of fire, slight smoky odor	JP
11/2/2007	2:13:00	Work Area Reading 7 N31.92190, W-88.53148	AM510	PM	1.36	mg/m3	<0.001	mg/m3	slight odor	JP
11/2/2007	4:21:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.053	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	4:32:00	Pump Station 3 Address 8520 on CR 636 N31.92901, W-88.52818	AM510	PM	0.063	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	4:39:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.058	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	4:47:00	Pump Station 1 Address 1719 on CR 620 N31.91034, W-88.53010	AM510	PM	0.212	mg/m3	<0.001	mg/m3	smoky odor, visible smoke	CRM/DC
11/2/2007	5:08:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.15	mg/m3	<0.001	mg/m3	smoky odor, slight visible smoke	CRM/DC

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11/2/2007	5:14:00	Chicken houses CR 620 N31.91133, W-88.52512	AM510	PM	0.054	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	5:19:00	Chicken houses CR 637 N31.90602, W-88.51786	AM510	PM	0.056	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	5:23:00	Address 2043 on CR 636 N31.90668, W-88.50918	AM510	PM	0.043	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	5:33:00	Address 796 on CR 636 N31.91901, W-88.52170	AM510	PM	0.042	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	5:38:00	Intersection of CR 630 & 636 Next to 4 police vehicles N31.93025, W-88.52119	AM510	PM	0.047	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	5:44:00	Intersection of CR 630 & 632 Next to 2 police vehicles N31.93201, W-88.54010	AM510	PM	0.049	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CRM/DC
11/2/2007	6:44:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.51	mg/m3	<0.001	mg/m3	no visible smoke, strong odor	CS/CRM
11/2/2007	6:48:00	Evacuated Community Next to police road block N31.91027, W-88.52550	AM510	PM	0.343	mg/m3	<0.001	mg/m3	no visible smoke, mild odor	CS/CRM
11/2/2007	6:55:00	Chicken houses CR 637 N31.90602, W-88.51786	AM510	PM	0.106	mg/m3	<0.001	mg/m3	no visible smoke, mild odor	CS/CRM
11/2/2007	6:58:00	Address 2043 on CR 636 N31.90668, W-88.50918	AM510	PM	0.048	mg/m3	<0.001	mg/m3	no visible smoke, no odor	CS/CRM
11/2/2007	7:02:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.08	mg/m3	<0.001	mg/m3	no visible smoke, no odor	CS/CRM
11/2/2007	7:06:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	AM510	PM	0.036	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:09:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:11:00	Intersection of CR 630 & 632 Near police road block N31.93201, W-88.54010	AM510	PM	0.036	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:15:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.048	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:19:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.048	mg/m3	<0.001	mg/m3	slight odor, no visible smoke	CS/CRM
11/2/2007	7:21:00	Chicken houses CR 620 N31.91133, W-88.52512	AM510	PM	0.222	mg/m3	<0.001	mg/m3	slight odor, no visible smoke	CS/CRM

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	7:25:00	Address 2043 on CR 636 N31.90668, W-88.50918	AM510	PM	0.06	mg/m3	<0.001	mg/m3	very slight odor, no visible smoke	CS/CRM
11/2/2007	7:28:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.059	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:32:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	AM510	PM	0.048	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:33:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.039	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:38:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.055	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CS/CRM
11/2/2007	7:58:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.053	mg/m3	<0.001	mg/m3	mild smoke odor, no visible smoke	JW
11/2/2007	8:03:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	AM510	PM	0.051	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:06:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	AM510	PM	0.044	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:12:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.036	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:16:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:19:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.039	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:27:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:32:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	AM510	PM	0.036	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:34:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.037	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:39:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.054	mg/m3	<0.001	mg/m3	mild smoke odor, no visible smoke	JW
11/2/2007	8:43:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	8:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	AM510	PM	0.036	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	9:01:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:09:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:14:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.035	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:20:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:25:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	AM510	PM	0.031	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:32:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:35:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.045	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:46:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	AM510	PM	0.035	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:50:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	9:54:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	10:01:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	10:27:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	10:53:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	AM510	PM	0.032	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	11:00:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	11:30:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	11:40:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	AM510	PM	0.041	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	11:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	11:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	11:57:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:02:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:08:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.031	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:10:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:12:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:15:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.032	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:20:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	AM510	PM	0.028	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:27:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.029	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:33:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:45:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.032	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:49:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	12:52:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.029	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	13:00:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.028	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	13:04:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	13:34:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	13:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.029	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:41:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.026	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	13:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:00:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	AM510	PM	0.031	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:04:00	Chicken houses CR 620 N31.91133, W-88.52512	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:15:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.032	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:18:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	AM510	PM	0.031	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:22:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.031	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:33:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.03	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	14:52:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.032	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	15:15:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	AM510	PM	0.031	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	15:32:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	15:36:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	AM510	PM	0.034	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	15:40:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	AM510	PM	0.033	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	15:42:00	Chicken houses CR 620 N31.91133, W-88.52512	AM510	PM	0.037	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	15:45:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.032	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/2/2007	23:56:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.045	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/2/2007	2:11:00 PM	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.029	mg/m3	<0.001	mg/m3	no odor, no visible smoke	JW
11/3/2007	0:02:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.061	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/3/2007	0:12:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.046	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:19:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.036	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:21:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.042	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:28:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.081	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:31:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.049	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:36:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.035	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:41:00	Pump Station 1 N31.91034, W-88.53010	AM510	PM	0.041	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:49:00	Pump Station 2 N31.91676, W-88.51908	AM510	PM	0.061	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:54:00	Pump Station 3 N31.92901, W-88.52818	AM510	PM	0.055	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/3/2007	0:58:00	Pump Station 4 N31.92409, W-88.53929	AM510	PM	0.048	mg/m3	<0.001	mg/m3	no odor, no visible smoke	CM/CS
11/2/2007	1:33:00	Work Area Reading 1 N31.92113, W-88.53246	MR+	VOC	<0.1	ppm	<0.1	ppm	slight smoky odor	JP/PN
11/2/2007	1:40:00	Work Area Reading 2 N31.92134, W-88.53102	MR+	VOC	<0.1	ppm	<0.1	ppm	slight smoky odor, directly downwind	JP/PN
11/2/2007	1:49:00	Work Area Reading 3 N31.92206, W-88.53075	MR+	VOC	<0.1	ppm	<0.1	ppm	slight smoky smell	JP/PN
11/2/2007	1:57:00	Work Area Reading 4 N31.92348, W-88.53106	MR+	VOC	<0.1	ppm	<0.1	ppm	moderate smoke, North 250 ft from fire, smoldering from bush	JP
11/2/2007	1:59:00	Work Area Reading 5 N31.92360, W-88.53181	MR+	VOC	<0.1	ppm	<0.1	ppm	200ft due North of fire, slight smoky odor	JP
11/2/2007	2:05:00	Work Area Reading 6 N31.92281, W-88.53214	MR+	VOC	<0.1	ppm	<0.1	ppm	200ft West of fire, slight smoky odor	JP
11/2/2007	2:13:00	Work Area Reading 7 N31.92190, W-88.53148	MR+	VOC	<0.1	ppm	<0.1	ppm	slight odor	JP
11/2/2007	4:21:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	4:32:00	Pump Station 3 Address 8520 on CR 636 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	4:39:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	4:47:00	Pump Station 1 Address 1719 on CR 620 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	smoky odor, visible smoke	CRM/DC
11/2/2007	5:08:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	smoky odor, slight visible smoke	CRM/DC
11/2/2007	5:14:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:19:00	Chicken houses CR 637 N31.90602, W-88.51786	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:23:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:33:00	Address 796 on CR 636 N31.91901, W-88.52170	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:38:00	Intersection of CR 630 & 636 Next to 4 police vehicles N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	5:44:00	Intersection of CR 630 & 632 Next to 2 police vehicles N31.93201, W-88.54010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CRM/DC
11/2/2007	6:44:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no visible smoke, strong odor	CS/CRM
11/2/2007	6:47:00	Evacuated Community Next to police road block N31.91027, W-88.52550	MR+	VOC	<0.1	ppm	<0.1	ppm	no visible smoke, mild odor	CS/CRM
11/2/2007	6:55:00	Chicken houses CR 637 N31.90602, W-88.51786	MR+	VOC	<0.1	ppm	<0.1	ppm	no visible smoke, mild odor	CS/CRM
11/2/2007	6:58:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	VOC	<0.1	ppm	<0.1	ppm	no visible smoke, no odor	CS/CRM
11/2/2007	7:02:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no visible smoke, no odor	CS/CRM
11/2/2007	7:06:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:09:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM

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Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	7:11:00	Intersection of CR 630 & 632 Near police road block N31.93201, W-88.54010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:19:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	slight odor, no visible smoke	CS/CRM
11/2/2007	7:21:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	slight odor, no visible smoke	CS/CRM
11/2/2007	7:25:00	Address 2043 on CR 636 N31.90668, W-88.50918	MR+	VOC	<0.1	ppm	<0.1	ppm	very slight odor, no visible smoke	CS/CRM
11/2/2007	7:28:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:32:00	Intersection of CR 630 & 636 Near police road block N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:33:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:38:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CS/CRM
11/2/2007	7:58:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	mild smoke odor, no visible smoke	JW
11/2/2007	8:03:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:06:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:12:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:16:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:19:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:27:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:32:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW

**Center for Toxicology and Environmental Health  
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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	8:34:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:39:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	mild smoke odor, no visible smoke	JW
11/2/2007	8:43:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	8:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:01:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:09:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:14:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:20:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:25:00	Intersection of CR 620 & 630 Near police road block N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:32:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:35:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:46:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:50:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	9:54:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	10:01:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	10:27:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	10:53:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	11:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	11:30:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	11:40:00	Chicken houses CR 620 Near police road block N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	11:46:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	11:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	11:57:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:02:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:08:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:10:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:12:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:15:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:20:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:27:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:33:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:45:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:49:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	12:52:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:00:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	13:04:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	13:34:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	13:40:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	13:41:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	13:49:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:49:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:49:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:50:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:50:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:51:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:51:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	13:52:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:52:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:52:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:05	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:07	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:19	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:53:23	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:33	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:35	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:37	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:39	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:41	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:43	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:45	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:47	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:49	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:51	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:53	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:55	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:57	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:53:59	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:01	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:03	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:09	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:11	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:13	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:15	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:17	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:21	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:25	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:27	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:29	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:31	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:54:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:54:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:55:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:55:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:55:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:56:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:56:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

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**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:57:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:57:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:10	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:12	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:14	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:16	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:18	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:20	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:22	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:24	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:26	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:58:28	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:30	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:32	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:34	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:36	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:38	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:40	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:42	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:44	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:46	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:48	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:50	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:52	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:54	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:56	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:58:58	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:00	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:02	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:04	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/2/2007	13:59:06	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	13:59:08	AreaRAE Station 4 N31.92409, W-88.53929	AR	VOC	<0.1	ppm	<0.1	ppm	evacutaed community	AR Station
11/2/2007	14:00:00	Intersection of CR 620 & 637 N31.90663, W-88.52187	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:04:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:10:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:15:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:18:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:22:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:33:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	14:52:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	15:15:00	Intersection of CR 630 & 636 Little Rock A.M.E Church N31.93025, W-88.52119	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	15:32:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	15:36:00	Intersection of CR 636 & 637 N31.90665, W-88.50925	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	15:40:00	Intersection of CR 620 & 630 N31.93122, W-88.53921	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	15:42:00	Chicken houses CR 620 N31.91133, W-88.52512	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	15:45:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	JW
11/2/2007	23:56:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	
11/3/2007	0:02:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS

**Center for Toxicology and Environmental Health  
Real-Time Air Sampling Summary**

**11-7-2007**

Date	Time	Location	Instrument	Analyte	Result	Units	DL	DL Units	Comments	Sampler
11/3/2007	0:12:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:19:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:21:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:28:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:31:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:36:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:41:00	Pump Station 1 N31.91034, W-88.53010	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:49:00	Pump Station 2 N31.91676, W-88.51908	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:54:00	Pump Station 3 N31.92901, W-88.52818	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS
11/3/2007	0:58:00	Pump Station 4 N31.92409, W-88.53929	MR+	VOC	<0.1	ppm	<0.1	ppm	no odor, no visible smoke	CM/CS

# **Appendix D**

## **Analytical Air Sampling Methods**

**Compendium of Methods  
for the Determination of  
Toxic Organic Compounds  
in Ambient Air**

**Second Edition**

**Compendium Method TO-15**

**Determination Of Volatile Organic  
Compounds (VOCs) In Air Collected In  
Specially-Prepared Canisters And  
Analyzed By Gas Chromatography/  
Mass Spectrometry (GC/MS)**

**Center for Environmental Research Information  
Office of Research and Development  
U.S. Environmental Protection Agency  
Cincinnati, OH 45268**

**January 1999**

## Method TO-15

### Acknowledgements

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- John O. Burckle, EPA, ORD, Cincinnati, OH
- James L. Cheney, Corps of Engineers, Omaha, NB
- Michael Davis, U.S. EPA, Region 7, KC, KS
- Joseph B. Elkins Jr., U.S. EPA, OAQPS, RTP, NC
- Robert G. Lewis, U.S. EPA, NERL, RTP, NC
- Justice A. Manning, U.S. EPA, ORD, Cincinnati, OH
- William A. McClenny, U.S. EPA, NERL, RTP, NC
- Frank F. McElroy, U.S. EPA, NERL, RTP, NC
- Heidi Schultz, ERG, Lexington, MA
- William T. "Jerry" Winberry, Jr., EnviroTech Solutions, Cary, NC

This Method is the result of the efforts of many individuals. Gratitude goes to each person involved in the preparation and review of this methodology.

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#### DISCLAIMER

***This Compendium has been subjected to the Agency's peer and administrative review, and it has been approved for publication as an EPA document. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.***

## METHOD TO-15

### Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS)

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## METHOD TO-15

### Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS)

#### 1. Scope

**1.1** This method documents sampling and analytical procedures for the measurement of subsets of the 97 volatile organic compounds (VOCs) that are included in the 189 hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990. VOCs are defined here as organic compounds having a vapor pressure greater than  $10^{-1}$  Torr at 25°C and 760 mm Hg. Table 1 is the list of the target VOCs along with their CAS number, boiling point, vapor pressure and an indication of their membership in both the list of VOCs covered by Compendium Method TO-14A (1) and the list of VOCs in EPA's Contract Laboratory Program (CLP) document entitled: *Statement-of-Work (SOW) for the Analysis of Air Toxics from Superfund Sites* (2).

Many of these compounds have been tested for stability in concentration when stored in specially-prepared canisters (see Section 8) under conditions typical of those encountered in routine ambient air analysis. The stability of these compounds under all possible conditions is not known. However, a model to predict compound losses due to physical adsorption of VOCs on canister walls and to dissolution of VOCs in water condensed in the canisters has been developed (3). Losses due to physical adsorption require only the establishment of equilibrium between the condensed and gas phases and are generally considered short term losses, (i.e., losses occurring over minutes to hours). Losses due to chemical reactions of the VOCs with cocollected ozone or other gas phase species also account for some short term losses. Chemical reactions between VOCs and substances inside the canister are generally assumed to cause the gradual decrease of concentration over time (i.e., long term losses over days to weeks). Loss mechanisms such as aqueous hydrolysis and biological degradation (4) also exist. No models are currently known to be available to estimate and characterize all these potential losses, although a number of experimental observations are referenced in Section 8. Some of the VOCs listed in Title III have short atmospheric lifetimes and may not be present except near sources.

**1.2** This method applies to ambient concentrations of VOCs above 0.5 ppbv and typically requires VOC enrichment by concentrating up to one liter of a sample volume. The VOC concentration range for ambient air in many cases includes the concentration at which continuous exposure over a lifetime is estimated to constitute a  $10^{-6}$  or higher lifetime risk of developing cancer in humans. Under circumstances in which many hazardous VOCs are present at  $10^{-6}$  risk concentrations, the total risk may be significantly greater.

**1.3** This method applies under most conditions encountered in sampling of ambient air into canisters. However, the composition of a gas mixture in a canister, under unique or unusual conditions, will change so that the sample is known not to be a true representation of the ambient air from which it was taken. For example, low humidity conditions in the sample may lead to losses of certain VOCs on the canister walls, losses that would not happen if the humidity were higher. If the canister is pressurized, then condensation of water from high humidity samples may cause fractional losses of water-soluble compounds. Since the canister surface area is limited, all gases are in competition for the available active sites. Hence an absolute storage stability cannot be assigned to a specific gas. Fortunately, under conditions of normal usage for sampling ambient air, most VOCs can be recovered from canisters near their original concentrations after storage times of up to thirty days (see Section 8).

**1.4** Use of the Compendium Method TO-15 for many of the VOCs listed in Table 1 is likely to present two difficulties: (1) what calibration standard to use for establishing a basis for testing and quantitation, and (2) how

to obtain an audit standard. In certain cases a chemical similarity exists between a thoroughly tested compound and others on the Title III list. In this case, what works for one is likely to work for the other in terms of making standards. However, this is not always the case and some compound standards will be troublesome. The reader is referred to the Section 9.2 on standards for guidance. Calibration of compounds such as formaldehyde, diazomethane, and many of the others represents a challenge.

**1.5** Compendium Method TO-15 should be considered for use when a subset of the 97 Title III VOCs constitute the target list. Typical situations involve ambient air testing associated with the permitting procedures for emission sources. In this case sampling and analysis of VOCs is performed to determine the impact of dispersing source emissions in the surrounding areas. Other important applications are prevalence and trend monitoring for hazardous VOCs in urban areas and risk assessments downwind of industrialized or source-impacted areas.

**1.6** Solid adsorbents can be used in lieu of canisters for sampling of VOCs, provided the solid adsorbent packings, usually multisorbent packings in metal or glass tubes, can meet the performance criteria specified in Compendium Method TO-17 which specifically addresses the use of multisorbent packings. The two sample collection techniques are different but become the same upon movement of the sample from the collection medium (canister or multisorbent tubes) onto the sample concentrator. Sample collection directly from the atmosphere by automated gas chromatographs can be used in lieu of collection in canisters or on solid adsorbents.

## **2. Summary of Method**

**2.1** The atmosphere is sampled by introduction of air into a specially-prepared stainless steel canister. Both subatmospheric pressure and pressurized sampling modes use an initially evacuated canister. A pump ventilated sampling line is used during sample collection with most commercially available samplers. Pressurized sampling requires an additional pump to provide positive pressure to the sample canister. A sample of air is drawn through a sampling train comprised of components that regulate the rate and duration of sampling into the pre-evacuated and passivated canister.

**2.2** After the air sample is collected, the canister valve is closed, an identification tag is attached to the canister, and the canister is transported to the laboratory for analysis.

**2.3** Upon receipt at the laboratory, the canister tag data is recorded and the canister is stored until analysis. Storage times of up to thirty days have been demonstrated for many of the VOCs (5).

**2.4** To analyze the sample, a known volume of sample is directed from the canister through a solid multisorbent concentrator. A portion of the water vapor in the sample breaks through the concentrator during sampling, to a degree depending on the multisorbent composition, duration of sampling, and other factors. Water content of the sample can be further reduced by dry purging the concentrator with helium while retaining target compounds. After the concentration and drying steps are completed, the VOCs are thermally desorbed, entrained in a carrier gas stream, and then focused in a small volume by trapping on a reduced temperature trap or small volume multisorbent trap. The sample is then released by thermal desorption and carried onto a gas chromatographic column for separation.

As a simple alternative to the multisorbent/dry purge water management technique, the amount of water vapor in the sample can be reduced below any threshold for affecting the proper operation of the analytical system by

reducing the sample size. For example, a small sample can be concentrated on a cold trap and released directly to the gas chromatographic column. The reduction in sample volume may require an enhancement of detector sensitivity.

Other water management approaches are also acceptable as long as their use does not compromise the attainment of the performance criteria listed in Section 11. A listing of some commercial water management systems is provided in Appendix A. One of the alternative ways to dry the sample is to separate VOCs from condensate on a low temperature trap by heating and purging the trap.

**2.5** The analytical strategy for Compendium Method TO-15 involves using a high resolution gas chromatograph (GC) coupled to a mass spectrometer. If the mass spectrometer is a linear quadrupole system, it is operated either by continuously scanning a wide range of mass to charge ratios (SCAN mode) or by monitoring select ion monitoring mode (SIM) of compounds on the target list. If the mass spectrometer is based on a standard ion trap design, only a scanning mode is used (note however, that the Selected Ion Storage (SIS) mode for the ion trap has features of the SIM mode). Mass spectra for individual peaks in the total ion chromatogram are examined with respect to the fragmentation pattern of ions corresponding to various VOCs including the intensity of primary and secondary ions. The fragmentation pattern is compared with stored spectra taken under similar conditions, in order to identify the compound. For any given compound, the intensity of the primary fragment is compared with the system response to the primary fragment for known amounts of the compound. This establishes the compound concentration that exists in the sample.

Mass spectrometry is considered a more definitive identification technique than single specific detectors such as flame ionization detector (FID), electron capture detector (ECD), photoionization detector (PID), or a multidetector arrangement of these (see discussion in Compendium Method TO-14A). The use of both gas chromatographic retention time and the generally unique mass fragmentation patterns reduce the chances for misidentification. If the technique is supported by a comprehensive mass spectral database and a knowledgeable operator, then the correct identification and quantification of VOCs is further enhanced.

### 3. Significance

**3.1** Compendium Method TO-15 is significant in that it extends the Compendium Method TO-14A description for using canister-based sampling and gas chromatographic analysis in the following ways:

- Compendium Method TO-15 incorporates a multisorbent/dry purge technique or equivalent (see Appendix A) for water management thereby addressing a more extensive set of compounds (the VOCs mentioned in Title III of the CAAA of 1990) than addressed by Compendium Method TO-14A. Compendium Method TO-14A approach to water management alters the structure or reduces the sample stream concentration of some VOCs, especially water-soluble VOCs.
- Compendium Method TO-15 uses the GC/MS technique as the only means to identify and quantitate target compounds. The GC/MS approach provides a more scientifically-defensible detection scheme which is generally more desirable than the use of single or even multiple specific detectors.
- In addition, Compendium Method TO-15 establishes method performance criteria for acceptance of data, allowing the use of alternate but equivalent sampling and analytical equipment. There are several new and viable commercial approaches for water management as noted in Appendix A of this method on which to base a VOC monitoring technique as well as other approaches to sampling (i.e., autoGCs and solid

adsorbents) that are often used. This method lists performance criteria that these alternatives must meet to be acceptable alternatives for monitoring ambient VOCs.

- Finally, Compendium Method TO-15 includes enhanced provisions for inherent quality control. The method uses internal analytical standards and frequent verification of analytical system performance to assure control of the analytical system. This more formal and better documented approach to quality control guarantees a higher percentage of good data.

**3.2** With these features, Compendium Method TO-15 is a more general yet better defined method for VOCs than Compendium Method TO-14A. As such, the method can be applied with a higher confidence to reduce the uncertainty in risk assessments in environments where the hazardous volatile gases listed in the Title III of the Clean Air Act Amendments of 1990 are being monitored. An emphasis on risk assessments for human health and effects on the ecology is a current goal for the U.S. EPA.

## 4. Applicable Documents

### 4.1 ASTM Standards

- **Method D1356** *Definitions of Terms Relating to Atmospheric Sampling and Analysis.*
- **Method E260** *Recommended Practice for General Gas Chromatography Procedures.*
- **Method E355** *Practice for Gas Chromatography Terms and Relationships.*
- **Method D5466** *Standard Test Method of Determination of Volatile Organic Compounds in Atmospheres (Canister Sampling Methodology).*

### 4.2 EPA Documents

- *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II*, U. S. Environmental Protection Agency, EPA-600/R-94-038b, May 1994.
- *Technical Assistance Document for Sampling and Analysis of Toxic Organic Compounds in Ambient Air*, U. S. Environmental Protection Agency, EPA-600/4-83-027, June 1983.
- *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air: Method TO-14, Second Supplement*, U. S. Environmental Protection Agency, EPA-600/4-89-018, March 1989.
- *Statement-of-Work (SOW) for the Analysis of Air Toxics from Superfund Sites*, U. S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C., Draft Report, June 1990.
- *Clean Air Act Amendments of 1990*, U. S. Congress, Washington, D.C., November 1990.

## 5. Definitions

*[Note: Definitions used in this document and any user-prepared standard operating procedures (SOPs) should be consistent with ASTM Methods D1356, E260, and E355. Aside from the definitions given below, all pertinent abbreviations and symbols are defined within this document at point of use.]*

**5.1 Gauge** Pressure—pressure measured with reference to the surrounding atmospheric pressure, usually expressed in units of kPa or psi. Zero gauge pressure is equal to atmospheric (barometric) pressure.

**5.2 Absolute Pressure**—pressure measured with reference to absolute zero pressure, usually expressed in units of kPa, or psi.

**5.3 Cryogen**—a refrigerant used to obtain sub-ambient temperatures in the VOC concentrator and/or on front of the analytical column. Typical cryogenes are liquid nitrogen (bp -195.8°C), liquid argon (bp -185.7°C), and liquid CO<sub>2</sub> (bp -79.5°C).

**5.4 Dynamic Calibration**—calibration of an analytical system using calibration gas standard concentrations in a form identical or very similar to the samples to be analyzed and by introducing such standards into the inlet of the sampling or analytical system from a manifold through which the gas standards are flowing.

**5.5 Dynamic Dilution**—means of preparing calibration mixtures in which standard gas(es) from pressurized cylinders are continuously blended with humidified zero air in a manifold so that a flowing stream of calibration mixture is available at the inlet of the analytical system.

**5.6 MS-SCAN**—mass spectrometric mode of operation in which the gas chromatograph (GC) is coupled to a mass spectrometer (MS) programmed to SCAN all ions repeatedly over a specified mass range.

**5.7 MS-SIM**—mass spectrometric mode of operation in which the GC is coupled to a MS that is programmed to scan a selected number of ions repeatedly [i.e., selected ion monitoring (SIM) mode].

**5.8 Qualitative Accuracy**—the degree of measurement accuracy required to correctly identify compounds with an analytical system.

**5.9 Quantitative Accuracy**—the degree of measurement accuracy required to correctly measure the concentration of an identified compound with an analytical system with known uncertainty.

**5.10 Replicate Precision**—precision determined from two canisters filled from the same air mass over the same time period and determined as the absolute value of the difference between the analyses of canisters divided by their average value and expressed as a percentage (see Section 11 for performance criteria for replicate precision).

**5.11 Duplicate Precision**—precision determined from the analysis of two samples taken from the same canister. The duplicate precision is determined as the absolute value of the difference between the canister analyses divided by their average value and expressed as a percentage.

**5.12 Audit Accuracy**—the difference between the analysis of a sample provided in an audit canister and the nominal value as determined by the audit authority, divided by the audit value and expressed as a percentage (see Section 11 for performance criteria for audit accuracy).

## 6. Interferences and Contamination

**6.1** Very volatile compounds, such as chloromethane and vinyl chloride can display peak broadening and co-elution with other species if the compounds are not delivered to the GC column in a small volume of carrier gas. Refocusing of the sample after collection on the primary trap, either on a separate focusing trap or at the head of the gas chromatographic column, mitigates this problem.

**6.2** Interferences in canister samples may result from improper use or from contamination of: (1) the canisters due to poor manufacturing practices, (2) the canister cleaning apparatus, and (3) the sampling or analytical system. Attention to the following details will help to minimize the possibility of contamination of canisters.

**6.2.1** Canisters should be manufactured using high quality welding and cleaning techniques, and new canisters should be filled with humidified zero air and then analyzed, after “aging” for 24 hours, to determine cleanliness. The cleaning apparatus, sampling system, and analytical system should be assembled of clean, high quality components and each system should be shown to be free of contamination.

**6.2.2** Canisters should be stored in a contaminant-free location and should be capped tightly during shipment to prevent leakage and minimize any compromise of the sample.

**6.2.3** Impurities in the calibration dilution gas (if applicable) and carrier gas, organic compounds out-gassing from the system components ahead of the trap, and solvent vapors in the laboratory account for the majority of contamination problems. The analytical system must be demonstrated to be free from contamination under the conditions of the analysis by running humidified zero air blanks. The use of non-chromatographic grade stainless steel tubing, non-PTFE thread sealants, or flow controllers with Buna-N rubber components must be avoided.

**6.2.4** Significant contamination of the analytical equipment can occur whenever samples containing high VOC concentrations are analyzed. This in turn can result in carryover contamination in subsequent analyses. Whenever a high concentration (>25 ppbv of a trace species) sample is encountered, it should be followed by an analysis of humid zero air to check for carry-over contamination.

**6.2.5** In cases when solid sorbents are used to concentrate the sample prior to analysis, the sorbents should be tested to identify artifact formation (see Compendium Method TO-17 for more information on artifacts).

## 7. Apparatus and Reagents

*[Note: Compendium Method To-14A list more specific requirements for sampling and analysis apparatus which may be of help in identifying options. The listings below are generic.]*

### 7.1 Sampling Apparatus

*[Note: Subatmospheric pressure and pressurized canister sampling systems are commercially available and have been used as part of U.S. Environmental Protection Agency's Toxic Air Monitoring Stations (TAMS), Urban Air Toxic Monitoring Program (UATMP), the non-methane organic compound (NMOC) sampling and analysis program, and the Photochemical Assessment Monitoring Stations (PAMS).]*

#### **7.1.1 Subatmospheric Pressure (see Figure 1, without metal bellows type pump).**

**7.1.1.1 Sampling Inlet Line.** Stainless steel tubing to connect the sampler to the sample inlet.

**7.1.1.2 Sample Canister.** Leak-free stainless steel pressure vessels of desired volume (e.g., 6 L), with valve and specially prepared interior surfaces (see Appendix B for a listing of known manufacturers/resellers of canisters).

**7.1.1.3 Stainless Steel Vacuum/Pressure Gauges.** Two types are required, one capable of measuring vacuum (–100 to 0 kPa or 0 to –30 in Hg) and pressure (0–206 kPa or 0–30 psig) in the sampling system and a second type (for checking the vacuum of canisters during cleaning) capable of measuring at 0.05 mm Hg (see Appendix B) within 20%. Gauges should be tested clean and leak tight.

**7.1.1.4 Electronic Mass Flow Controller.** Capable of maintaining a constant flow rate ( $\pm 10\%$ ) over a sampling period of up to 24 hours and under conditions of changing temperature (20–40°C) and humidity.

**7.1.1.5 Particulate Matter Filter.** 2- $\mu\text{m}$  sintered stainless steel in-line filter.

**7.1.1.6 Electronic Timer.** For unattended sample collection.

**7.1.1.7 Solenoid Valve.** Electrically-operated, bi-stable solenoid valve with Viton® seat and O-rings. A Skinner Magnelatch valve is used for purposes of illustration in the text (see Figure 2).

**7.1.1.8 Chromatographic Grade Stainless Steel Tubing and Fittings.** For interconnections. All such materials in contact with sample, analyte, and support gases prior to analysis should be chromatographic grade stainless steel or equivalent.

**7.1.1.9 Thermostatically Controlled Heater.** To maintain above ambient temperature inside insulated sampler enclosure.

**7.1.1.10 Heater Thermostat.** Automatically regulates heater temperature.

**7.1.1.11 Fan.** For cooling sampling system.

**7.1.1.12 Fan Thermostat.** Automatically regulates fan operation.

**7.1.1.13 Maximum-Minimum Thermometer.** Records highest and lowest temperatures during sampling period.

**7.1.1.14 Stainless Steel Shut-off Valve.** Leak free, for vacuum/pressure gauge.

**7.1.1.15 Auxiliary Vacuum Pump.** Continuously draws air through the inlet manifold at 10 L/min. or higher flow rate. Sample is extracted from the manifold at a lower rate, and excess air is exhausted.

*[Note: The use of higher inlet flow rates dilutes any contamination present in the inlet and reduces the possibility of sample contamination as a result of contact with active adsorption sites on inlet walls.]*

**7.1.1.16 Elapsed Time Meter.** Measures duration of sampling.

**7.1.1.17 Optional Fixed Orifice, Capillary, or Adjustable Micrometering Valve.** May be used in lieu of the electronic flow controller for grab samples or short duration time-integrated samples. Usually appropriate only in situations where screening samples are taken to assess future sampling activity.

**7.1.2 Pressurized (see Figure 1 with metal bellows type pump and Figure 3).**

**7.1.2.1 Sample Pump.** Stainless steel, metal bellows type, capable of 2 atmospheres output pressure. Pump must be free of leaks, clean, and uncontaminated by oil or organic compounds.

*[Note: An alternative sampling system has been developed by Dr. R. Rasmussen, The Oregon Graduate Institute of Science and Technology, 20000 N.W. Walker Rd., Beaverton, Oregon 97006, 503-690-1077, and is illustrated in Figure 3. This flow system uses, in order, a pump, a mechanical flow regulator, and a mechanical compensation flow restrictive device. In this configuration the pump is purged with a large sample flow, thereby eliminating the need for an auxiliary vacuum pump to flush the sample inlet.]*

**7.1.2.2 Other Supporting Materials.** All other components of the pressurized sampling system are similar to components discussed in Sections 7.1.1.1 through 7.1.1.17.

## 7.2 Analytical Apparatus

**7.2.1 Sampling/Concentrator System (many commercial alternatives are available).**

**7.2.1.1 Electronic Mass Flow Controllers.** Used to maintain constant flow (for purge gas, carrier gas and sample gas) and to provide an analog output to monitor flow anomalies.

**7.2.1.2 Vacuum Pump.** General purpose laboratory pump, capable of reducing the downstream pressure of the flow controller to provide the pressure differential necessary to maintain controlled flow rates of sample air.

**7.2.1.3 Stainless Steel Tubing and Stainless Steel Fittings.** Coated with fused silica to minimize active adsorption sites.

**7.2.1.4 Stainless Steel Cylinder Pressure Regulators.** Standard, two-stage cylinder regulators with pressure gauges.

**7.2.1.5 Gas Purifiers.** Used to remove organic impurities and moisture from gas streams.

**7.2.1.6 Six-port Gas Chromatographic Valve.** For routing sample and carrier gas flows.

**7.2.1.7 Multisorbent Concentrator.** Solid adsorbent packing with various retentive properties for adsorbing trace gases are commercially available from several sources. The packing contains more than one type of adsorbent packed in series.

**7.2.1.7.1A** pre-packed adsorbent trap (Supelco 2-0321) containing 200 mg Carbopack B (60/80 mesh) and 50 mg Carbosieve S-III (60/80 mesh) has been found to retain VOCs and allow some water vapor to pass through (6). The addition of a dry purging step allows for further water removal from the adsorbent trap. The steps constituting the dry purge technique that are normally used with multisorbent traps are illustrated in Figure 4. The optimum trapping and dry purging procedure for the Supelco trap consists of a sample volume of 320 mL and a dry nitrogen purge of 1300 mL. Sample trapping and drying is carried out at 25°C. The trap is back-flushed with helium and heated to 220°C to transfer material onto the GC column. A trap bake-out at 260°C for 5 minutes is conducted after each run.

**7.2.1.7.2** An example of the effectiveness of dry purging is shown in Figure 5. The multisorbent used in this case is Tenax/Ambersorb 340/Charcoal (7). Approximately 20% of the initial water content in the sample remains after sampling 500 mL of air. The detector response to water vapor (hydrogen atoms detected by atomic emission detection) is plotted versus purge gas volume. Additional water reduction by a factor of 8 is indicated at temperatures of 45°C or higher. Still further water reduction is possible using a two-stage concentration/dryer system.

**7.2.1.8 Cryogenic Concentrator.** Complete units are commercially available from several vendor sources. The characteristics of the latest concentrators include a rapid, "ballistic" heating of the concentrator to release any trapped VOCs into a small carrier gas volume. This facilitates the separation of compounds on the gas chromatographic column.

## **7.2.2 Gas Chromatographic/Mass Spectrometric (GC/MS) System.**

**7.2.2.1 Gas Chromatograph.** The gas chromatographic (GC) system must be capable of temperature programming. The column oven can be cooled to subambient temperature (e.g., -50°C) at the start of the gas chromatographic run to effect a resolution of the very volatile organic compounds. In other designs, the rate of release of compounds from the focusing trap in a two stage system obviates the need for retrapping of compounds on the column. The system must include or be interfaced to a concentrator and have all required accessories including analytical columns and gases. All GC carrier gas lines must be constructed from stainless steel or copper tubing. Non-polytetrafluoroethylene (PTFE) thread sealants or flow controllers with Buna-N rubber components must not be used.

**7.2.2.2 Chromatographic Columns.** 100% methyl silicone or 5% phenyl, 95% methyl silicone fused silica capillary columns of 0.25- to 0.53-mm I.D. of varying lengths are recommended for separation of many of the possible subsets of target compounds involving nonpolar compounds. However, considering the diversity of the target list, the choice is left to the operator subject to the performance standards given in Section 11.

**7.2.2.3 Mass Spectrometer.** Either a linear quadrupole or ion trap mass spectrometer can be used as long as it is capable of scanning from 35 to 300 amu every 1 second or less, utilizing 70 volts (nominal) electron energy in the electron impact ionization mode, and producing a mass spectrum which meets all the instrument performance acceptance criteria when 50 ng or less of p-bromofluorobenzene (BFB) is analyzed.

**7.2.2.3.1 Linear Quadrupole Technology.** A simplified diagram of the heart of the quadrupole mass spectrometer is shown in Figure 6. The quadrupole consists of a parallel set of four rod electrodes mounted in a square configuration. The field within the analyzer is created by coupling opposite pairs of rods together and applying radiofrequency (RF) and direct current (DC) potentials between the pairs of rods. Ions created in the ion source from the reaction of column eluates with electrons from the electron source are moved through the

parallel array of rods under the influence of the generated field. Ions which are successfully transmitted through the quadrupole are said to possess stable trajectories and are subsequently recorded with the detection system. When the DC potential is zero, a wide band of  $m/z$  values is transmitted through the quadrupole. This "RF only" mode is referred to as the "total-ion" mode. In this mode, the quadrupole acts as a strong focusing lens analogous to a high pass filter. The amplitude of the RF determines the low mass cutoff. A mass spectrum is generated by scanning the DC and RF voltages using a fixed DC/RF ratio and a constant drive frequency or by scanning the frequency and holding the DC and RF constant. With the quadrupole system only 0.1 to 0.2 percent of the ions formed in the ion source actually reach the detector.

**7.2.2.3.2 Ion Trap Technology.** An ion-trap mass spectrometer consists of a chamber formed between two metal surfaces in the shape of a hyperboloid of one sheet (ring electrode) and a hyperboloid of two sheets (the two end-cap electrodes). Ions are created within the chamber by electron impact from an electron beam admitted through a small aperture in one of the end caps. Radio frequency (RF) (and sometimes direct current voltage offsets) are applied between the ring electrode and the two end-cap electrodes establishing a quadrupole electric field. This field is uncoupled in three directions so that ion motion can be considered independently in each direction; the force acting upon an ion increases with the displacement of the ion from the center of the field but the direction of the force depends on the instantaneous voltage applied to the ring electrode. A restoring force along one coordinate (such as the distance,  $r$ , from the ion-trap's axis of radial symmetry) will exist concurrently with a repelling force along another coordinate (such as the distance,  $z$ , along the ion traps axis), and if the field were static the ions would eventually strike an electrode. However, in an RF field the force along each coordinate alternates direction so that a stable trajectory may be possible in which the ions do not strike a surface. In practice, ions of appropriate mass-to-charge ratios may be trapped within the device for periods of milliseconds to hours. A diagram of a typical ion trap is illustrated in Figure 7. Analysis of stored ions is performed by increasing the RF voltage, which makes the ions successively unstable. The effect of the RF voltage on the ring electrode is to "squeeze" the ions in the  $xy$  plane so that they move along the  $z$  axis. Half the ions are lost to the top cap (held at ground potential); the remaining ions exit the lower end cap to be detected by the electron multiplier. As the energy applied to the ring electrode is increased, the ions are collected in order of increasing mass to produce a conventional mass spectrum. With the ion trap, approximately 50 percent of the generated ions are detected. As a result, a significant increase in sensitivity can be achieved when compared to a full scan linear quadrupole system.

**7.2.2.4 GC/MS Interface.** Any gas chromatograph to mass spectrometer interface that gives acceptable calibration points for each of the analytes of interest and can be used to achieve all acceptable performance criteria may be used. Gas chromatograph to mass spectrometer interfaces constructed of all-glass, glass-lined, or fused silica-lined materials are recommended. Glass and fused silica should be deactivated.

**7.2.2.5 Data System.** The computer system that is interfaced to the mass spectrometer must allow the continuous acquisition and storage, on machine readable media, of all mass spectra obtained throughout the duration of the chromatographic program. The computer must have software that allows searching any GC/MS data file for ions of a specified mass and plotting such ion abundances versus time or scan number. This type of plot is defined as a Selected Ion Current Profile (SICP). Software must also be available that allows integrating the abundance in any SICP between specified time or scan number limits. Also, software must be available that allows for the comparison of sample spectra with reference library spectra. The National Institute of Standards and Technology (NIST) or Wiley Libraries or equivalent are recommended as reference libraries.

**7.2.2.6 Off-line Data Storage Device.** Device must be capable of rapid recording and retrieval of data and must be suitable for long-term, off-line data storage.

### 7.3 Calibration System and Manifold Apparatus (see Figure 8)

**7.3.1 Calibration Manifold.** Stainless steel, glass, or high purity quartz manifold, (e.g., 1.25-cm I.D. x 66-cm) with sampling ports and internal baffles for flow disturbance to ensure proper mixing. The manifold should be heated to ~50°C.

**7.3.2 Humidifier.** 500-mL impinger flask containing HPLC grade deionized water.

**7.3.3 Electronic Mass Flow Controllers.** One 0 to 5 L/min unit and one or more 0 to 100 mL/min units for air, depending on number of cylinders in use for calibration.

**7.3.4 Teflon Filter(s).** 47-mm Teflon® filter for particulate collection.

### 7.4 Reagents

**7.4.1 Neat Materials or Manufacturer-Certified Solutions/Mixtures.** Best source (see Section 9).

**7.4.2 Helium and Air.** Ultra-high purity grade in gas cylinders. He is used as carrier gas in the GC.

**7.4.3 Liquid Nitrogen or Liquid Carbon Dioxide.** Used to cool secondary trap.

**7.4.4 Deionized Water.** High performance liquid chromatography (HPLC) grade, ultra-high purity (for humidifier).

## 8. Collection of Samples in Canisters

### 8.1 Introduction

**8.1.1** Canister samplers, sampling procedures, and canister cleaning procedures have not changed very much from the description given in the original Compendium Method TO-14. Much of the material in this section is therefore simply a restatement of the material given in Compendium Method TO-14, repeated here in order to have all the relevant information in one place.

**8.1.2** Recent notable additions to the canister technology has been in the application of canister-based systems for example, to microenvironmental monitoring (8), the capture of breath samples (9), and sector sampling to identify emission sources of VOCs (10).

**8.1.3** EPA has also sponsored the development of a mathematical model to predict the storage stability of arbitrary mixtures of trace gases in humidified air (3), and the investigation of the SilcoSteel™ process of coating the canister interior with a film of fused silica to reduce surface activity (11). A recent summary of storage stability data for VOCs in canisters is given in the open literature (5).

### 8.2 Sampling System Description

#### 8.2.1 Subatmospheric Pressure Sampling [see Figure 1 (without metal bellows type pump)].

**8.2.1.1** In preparation for subatmospheric sample collection in a canister, the canister is evacuated to 0.05 mm Hg (see Appendix C for discussion of evacuation pressure). When the canister is opened to the atmosphere containing the VOCs to be sampled, the differential pressure causes the sample to flow into the canister. This technique may be used to collect grab samples (duration of 10 to 30 seconds) or time-weighted-average (TWA) samples (duration of 1-24 hours) taken through a flow-restrictive inlet (e.g., mass flow controller, critical orifice).

**8.2.1.2** With a critical orifice flow restrictor, there will be a decrease in the flow rate as the pressure approaches atmospheric. However, with a mass flow controller, the subatmospheric sampling system can maintain a constant flow rate from full vacuum to within about 7 kPa (1.0 psi) or less below ambient pressure.

**8.2.2 Pressurized Sampling [see Figure 1 (with metal bellows type pump)].**

**8.2.2.1** Pressurized sampling is used when longer-term integrated samples or higher volume samples are required. The sample is collected in a canister using a pump and flow control arrangement to achieve a typical 101-202 kPa (15-30 psig) final canister pressure. For example, a 6-liter evacuated canister can be filled at 10 mL/min for 24 hours to achieve a final pressure of 144 kPa (21 psig).

**8.2.2.2** In pressurized canister sampling, a metal bellows type pump draws in air from the sampling manifold to fill and pressurize the sample canister.

**8.2.3 All Samplers.**

**8.2.3.1** A flow control device is chosen to maintain a constant flow into the canister over the desired sample period. This flow rate is determined so the canister is filled (to about 88.1 kPa for subatmospheric pressure sampling or to about one atmosphere above ambient pressure for pressurized sampling) over the desired sample period. The flow rate can be calculated by:

$$F = \frac{P \times V}{T \times 60}$$

where:

F = flow rate, mL/min.

P = final canister pressure, atmospheres absolute. P is approximately equal to

$$\frac{\text{kPa gauge}}{101.2} + 1$$

V = volume of the canister, mL.

T = sample period, hours.

For example, if a 6-L canister is to be filled to 202 kPa (2 atmospheres) absolute pressure in 24 hours, the flow rate can be calculated by:

$$F = \frac{2 \times 6000}{24 \times 60} = 8.3 \text{ mL/min}$$

**8.2.3.2** For automatic operation, the timer is designed to start and stop the pump at appropriate times for the desired sample period. The timer must also control the solenoid valve, to open the valve when starting the pump and to close the valve when stopping the pump.

**8.2.3.3** The use of the Skinner Magnelatch valve (see Figure 2) avoids any substantial temperature rise that would occur with a conventional, normally closed solenoid valve that would have to be energized during the entire sample period. The temperature rise in the valve could cause outgassing of organic compounds from the Viton® valve seat material. The Skinner Magnelatch valve requires only a brief electrical pulse to open or close at the appropriate start and stop times and therefore experiences no temperature increase. The pulses may be obtained either with an electronic timer that can be programmed for short (5 to 60 seconds) ON periods, or with a conventional mechanical timer and a special pulse circuit. A simple electrical pulse circuit for operating the Skinner Magnelatch solenoid valve with a conventional mechanical timer is illustrated in Figure 2(a). However, with this simple circuit, the valve may operate unreliably during brief power interruptions or if the timer is manually switched on and off too fast. A better circuit incorporating a time-delay relay to provide more reliable valve operation is shown in Figure 2(b).

**8.2.3.4** The connecting lines between the sample inlet and the canister should be as short as possible to minimize their volume. The flow rate into the canister should remain relatively constant over the entire sampling period.

**8.2.3.5** As an option, a second electronic timer may be used to start the auxiliary pump several hours prior to the sampling period to flush and condition the inlet line.

**8.2.3.6** Prior to field use, each sampling system must pass a humid zero air certification (see Section 8.4.3). All plumbing should be checked carefully for leaks. The canisters must also pass a humid zero air certification before use (see Section 8.4.1).

### 8.3 Sampling Procedure

**8.3.1** The sample canister should be cleaned and tested according to the procedure in Section 8.4.1.

**8.3.2** A sample collection system is assembled as shown in Figures 1 and 3 and must be cleaned according to the procedure outlined in Sections 8.4.2 and 8.4.4.

*[Note: The sampling system should be contained in an appropriate enclosure.]*

**8.3.3** Prior to locating the sampling system, the user may want to perform "screening analyses" using a portable GC system, as outlined in Appendix B of Compendium Method TO-14A, to determine potential volatile organics present and potential "hot spots." The information gathered from the portable GC screening analysis would be used in developing a monitoring protocol, which includes the sampling system location, based upon the "screening analysis" results.

**8.3.4** After "screening analysis," the sampling system is located. Temperatures of ambient air and sampler box interior are recorded on the canister sampling field test data sheet (FTDS), as documented in Figure 9.

*[Note: The following discussion is related to Figure 1]*

**8.3.5** To verify correct sample flow, a "practice" (evacuated) canister is used in the sampling system.

*[Note: For a subatmospheric sampler, a flow meter and practice canister are needed. For the pump-driven system, the practice canister is not needed, as the flow can be measured at the outlet of the system.]*

A certified mass flow meter is attached to the inlet line of the manifold, just in front of the filter. The canister is opened. The sampler is turned on and the reading of the certified mass flow meter is compared to the sampler mass flow controller. The values should agree within  $\pm 10\%$ . If not, the sampler mass flow meter needs to be recalibrated or there is a leak in the system. This should be investigated and corrected.

*[Note: Mass flow meter readings may drift. Check the zero reading carefully and add or subtract the zero reading when reading or adjusting the sampler flow rate to compensate for any zero drift.]*

After 2 minutes, the desired canister flow rate is adjusted to the proper value (as indicated by the certified mass flow meter) by the sampler flow control unit controller (e.g., 3.5 mL/min for 24 hr, 7.0 mL/min for 12 hr). Record final flow under "CANISTER FLOW RATE" on the FTDS.

**8.3.6** The sampler is turned off and the elapsed time meter is reset to 000.0.

*[Note: Whenever the sampler is turned off, wait at least 30 seconds to turn the sampler back on.]*

**8.3.7** The "practice" canister and certified mass flow meter are disconnected and a clean certified (see Section 8.4.1) canister is attached to the system.

**8.3.8** The canister valve and vacuum/pressure gauge valve are opened.

**8.3.9** Pressure/vacuum in the canister is recorded on the canister FTDS (see Figure 9) as indicated by the sampler vacuum/pressure gauge.

**8.3.10** The vacuum/pressure gauge valve is closed and the maximum-minimum thermometer is reset to current temperature. Time of day and elapsed time meter readings are recorded on the canister FTDS.

**8.3.11** The electronic timer is set to start and stop the sampling period at the appropriate times. Sampling starts and stops by the programmed electronic timer.

**8.3.12** After the desired sampling period, the maximum, minimum, current interior temperature and current ambient temperature are recorded on the FTDS. The current reading from the flow controller is recorded.

**8.3.13** At the end of the sampling period, the vacuum/pressure gauge valve on the sampler is briefly opened and closed and the pressure/vacuum is recorded on the FTDS. Pressure should be close to desired pressure.

*[Note: For a subatmospheric sampling system, if the canister is at atmospheric pressure when the field final pressure check is performed, the sampling period may be suspect. This information should be noted on the sampling field data sheet.]*

Time of day and elapsed time meter readings are also recorded.

**8.3.14** The canister valve is closed. The sampling line is disconnected from the canister and the canister is removed from the system. For a subatmospheric system, a certified mass flow meter is once again connected to the inlet manifold in front of the in-line filter and a "practice" canister is attached to the Magelatch valve of the sampling system. The final flow rate is recorded on the canister FTDS (see Figure 9).

*[Note: For a pressurized system, the final flow may be measured directly.]*

The sampler is turned off.

**8.3.15** An identification tag is attached to the canister. Canister serial number, sample number, location, and date, as a minimum, are recorded on the tag. The canister is routinely transported back to the analytical laboratory with other canisters in a canister shipping case.

## 8.4 Cleaning and Certification Program

### 8.4.1 Canister Cleaning and Certification.

**8.4.1.1** All canisters must be clean and free of any contaminants before sample collection.

**8.4.1.2** All canisters are leak tested by pressurizing them to approximately 206 kPa (30 psig) with zero air.

*[Note: The canister cleaning system in Figure 10 can be used for this task.]*

The initial pressure is measured, the canister valve is closed, and the final pressure is checked after 24 hours. If acceptable, the pressure should not vary more than  $\pm 13.8$  kPa ( $\pm 2$  psig) over the 24 hour period.

**8.4.1.3** A canister cleaning system may be assembled as illustrated in Figure 10. Cryogen is added to both the vacuum pump and zero air supply traps. The canister(s) are connected to the manifold. The vent shut-off valve and the canister valve(s) are opened to release any remaining pressure in the canister(s). The vacuum pump is started and the vent shut-off valve is then closed and the vacuum shut-off valve is opened. The canister(s) are evacuated to  $<0.05$  mm Hg (see Appendix B) for at least 1 hour.

*[Note: On a daily basis or more often if necessary, the cryogenic traps should be purged with zero air to remove any trapped water from previous canister cleaning cycles.]*

Air released/evacuated from canisters should be diverted to a fume hood.

**8.4.1.4** The vacuum and vacuum/pressure gauge shut-off valves are closed and the zero air shut-off valve is opened to pressurize the canister(s) with humid zero air to approximately 206 kPa (30 psig). If a zero gas generator system is used, the flow rate may need to be limited to maintain the zero air quality.

**8.4.1.5** The zero air shut-off valve is closed and the canister(s) is allowed to vent down to atmospheric pressure through the vent shut-off valve. The vent shut-off valve is closed. Repeat Sections 8.4.1.3 through 8.4.1.5 two additional times for a total of three (3) evacuation/pressurization cycles for each set of canisters.

**8.4.1.6** At the end of the evacuation/pressurization cycle, the canister is pressurized to 206 kPa (30 psig) with humid zero air. The canister is then analyzed by a GC/MS analytical system. Any canister that has not tested clean (compared to direct analysis of humidified zero air of less than 0.2 ppbv of targeted VOCs) should not be used. As a "blank" check of the canister(s) and cleanup procedure, the final humid zero air fill of 100% of the canisters is analyzed until the cleanup system and canisters are proven reliable (less than 0.2 ppbv of any target VOCs). The check can then be reduced to a lower percentage of canisters.

**8.4.1.7** The canister is reattached to the cleaning manifold and is then reevacuated to <0.05 mm Hg (see Appendix B) and remains in this condition until used. The canister valve is closed. The canister is removed from the cleaning system and the canister connection is capped with a stainless steel fitting. The canister is now ready for collection of an air sample. An identification tag is attached to the inlet of each canister for field notes and chain-of-custody purposes. An alternative to evacuating the canister at this point is to store the canisters and reevacuate them just prior to the next use.

**8.4.1.8** As an option to the humid zero air cleaning procedures, the canisters are heated in an isothermal oven not to exceed 100°C during evacuation of the canister to ensure that higher molecular weight compounds are not retained on the walls of the canister.

*[Note: For sampling more complex VOC mixtures the canisters should be heated to higher temperatures during the cleaning procedure although a special high temperature valve would be needed].*

Once heated, the canisters are evacuated to <0.05 mm Hg (see Appendix B) and maintained there for 1 hour. At the end of the heated/evacuated cycle, the canisters are pressurized with humid zero air and analyzed by a GC/MS system after a minimum of 12 hrs of "aging." Any canister that has not tested clean (less than 0.2 ppbv each of targeted compounds) should not be used. Once tested clean, the canisters are reevacuated to <0.05 mm Hg (see Appendix B) and remain in the evacuated state until used. As noted in Section 8.4.1.7, reevacuation can occur just prior to the next use.

#### **8.4.2 Cleaning Sampling System Components.**

**8.4.2.1** Sample components are disassembled and cleaned before the sampler is assembled. Nonmetallic parts are rinsed with HPLC grade deionized water and dried in a vacuum oven at 50°C. Typically, stainless steel parts and fittings are cleaned by placing them in a beaker of methanol in an ultrasonic bath for 15 minutes. This procedure is repeated with hexane as the solvent.

**8.4.2.2** The parts are then rinsed with HPLC grade deionized water and dried in a vacuum oven at 100°C for 12 to 24 hours.

**8.4.2.3** Once the sampler is assembled, the entire system is purged with humid zero air for 24 hours.

#### **8.4.3 Zero Air Certification.**

*[Note: In the following sections, "certification" is defined as evaluating the sampling system with humid zero air and humid calibration gases that pass through all active components of the sampling system. The system is "certified" if no significant additions or deletions (less than 0.2 ppbv each of target compounds) have occurred when challenged with the test gas stream.]*

**8.4.3.1** The cleanliness of the sampling system is determined by testing the sampler with humid zero air without an evacuated gas sampling canister, as follows.

**8.4.3.2** The calibration system and manifold are assembled, as illustrated in Figure 8. The sampler (without an evacuated gas canister) is connected to the manifold and the zero air cylinder is activated to generate a humid gas stream (2 L/min) to the calibration manifold [see Figure 8(b)].

**8.4.3.3** The humid zero gas stream passes through the calibration manifold, through the sampling system (without an evacuated canister) to the water management system/VOC preconcentrator of an analytical system.

*[Note: The exit of the sampling system (without the canister) replaces the canister in Figure 11.]*

After the sample volume (e.g., 500 mL) is preconcentrated on the trap, the trap is heated and the VOCs are thermally desorbed and refocused on a cold trap. This trap is heated and the VOCs are thermally desorbed onto the head of the capillary column. The VOCs are refocused prior to gas chromatographic separation. Then, the oven temperature (programmed) increases and the VOCs begin to elute and are detected by a GC/MS (see Section 10) system. The analytical system should not detect greater than 0.2 ppbv of any targeted VOCs in order for the sampling system to pass the humid zero air certification test. Chromatograms (using an FID) of a certified sampler and contaminated sampler are illustrated in Figures 12(a) and 12(b), respectively. If the sampler passes the humid zero air test, it is then tested with humid calibration gas standards containing selected VOCs at concentration levels expected in field sampling (e.g., 0.5 to 2 ppbv) as outlined in Section 8.4.4.

#### **8.4.4 Sampler System Certification with Humid Calibration Gas Standards from a Dynamic Calibration System**

**8.4.4.1** Assemble the dynamic calibration system and manifold as illustrated in Figure 8.

**8.4.4.2** Verify that the calibration system is clean (less than 0.2 ppbv of any target compounds) by sampling a humidified gas stream, *without* gas calibration standards, with a previously certified clean canister (see Section 8.1).

**8.4.4.3** The assembled dynamic calibration system is certified clean if less than 0.2 ppbv of any targeted compounds is found.

**8.4.4.4** For generating the humidified calibration standards, the calibration gas cylinder(s) containing nominal concentrations of 10 ppmv in nitrogen of selected VOCs is attached to the calibration system as illustrated in Figure 8. The gas cylinders are opened and the gas mixtures are passed through 0 to 10 mL/min certified mass flow controllers to generate ppb levels of calibration standards.

**8.4.4.5** After the appropriate equilibrium period, attach the sampling system (containing a certified evacuated canister) to the manifold, as illustrated in Figure 8(b).

**8.4.4.6** Sample the dynamic calibration gas stream with the sampling system.

**8.4.4.7** Concurrent with the sampling system operation, realtime monitoring of the calibration gas stream is accomplished by the on-line GC/MS analytical system [Figure 8(a)] to provide reference concentrations of generated VOCs.

**8.4.4.8** At the end of the sampling period (normally the same time period used for experiments), the sampling system canister is analyzed and compared to the reference GC/MS analytical system to determine if the concentration of the targeted VOCs was increased or decreased by the sampling system.

**8.4.4.9** A recovery of between 90% and 110% is expected for all targeted VOCs.

#### **8.4.5 Sampler System Certification without Compressed Gas Cylinder Standards.**

**8.4.5.1** Not all the gases on the Title III list are available/compatible with compressed gas standards. In these cases sampler certification must be approached by different means.

**8.4.5.2** Definitive guidance is not currently available in these cases; however, Section 9.2 lists several ways to generate gas standards. In general, Compendium Method TO-14A compounds (see Table 1) are available commercially as compressed gas standards.

## 9. GC/MS Analysis of Volatiles from Canisters

### 9.1 Introduction

**9.1.1** The analysis of canister samples is accomplished with a GC/MS system. Fused silica capillary columns are used to achieve high temporal resolution of target compounds. Linear quadrupole or ion trap mass spectrometers are employed for compound detection. The heart of the system is composed of the sample inlet concentrating device that is needed to increase sample loading into a detectable range. Two examples of concentrating systems are discussed. Other approaches are acceptable as long as they are compatible with achieving the system performance criteria given in Section 11.

**9.1.2** With the first technique, a whole air sample from the canister is passed through a multisorbent packing (including single adsorbent packings) contained within a metal or glass tube maintained at or above the surrounding air temperature. Depending on the water retention properties of the packing, some or most of the water vapor passes completely through the trap during sampling. Additional drying of the sample is accomplished after the sample concentration is completed by forward purging the trap with clean, dry helium or another inert gas (air is not used). The sample is then thermally desorbed from the packing and backflushed from the trap onto a gas chromatographic column. In some systems a "refocusing" trap is placed between the primary trap and the gas chromatographic column. The specific system design downstream of the primary trap depends on technical factors such as the rate of thermal desorption and sampled volume, but the objective in most cases is to enhance chromatographic resolution of the individual sample components before detection on a mass spectrometer.

**9.1.3** Sample drying strategies depend on the target list of compounds. For some target compound lists, the multisorbent packing of the concentrator can be selected from hydrophobic adsorbents which allow a high percentage of water vapor in the sample to pass through the concentrator during sampling and without significant loss of the target compounds. However, if very volatile organic compounds are on the target list, the adsorbents required for their retention may also strongly retain water vapor and a more lengthy dry purge is necessary prior to analysis.

**9.1.4** With the second technique, a whole air sample is passed through a concentrator where the VOCs are condensed on a reduced temperature surface (cold trap). Subsequently, the condensed gases are thermally desorbed and backflushed from the trap with an inert gas onto a gas chromatographic column. This concentration technique is similar to that discussed in Compendium Method TO-14, although a membrane dryer is not used. The sample size is reduced in volume to limit the amount of water vapor that is also collected (100 mL or less may be necessary). The attendant reduction in sensitivity is offset by enhancing the sensitivity of detection, for example by using an ion trap detector.

## 9.2 Preparation of Standards

### 9.2.1 Introduction.

**9.2.1.1** When available, standard mixtures of target gases in high pressure cylinders must be certified traceable to a NIST Standard Reference Material (SRM) or to a NIST/EPA approved Certified Reference Material (CRM). Manufacturer's certificates of analysis must be retained to track the expiration date.

**9.2.1.2** The neat standards that are used for making trace gas standards must be of high purity; generally a purity of 98 percent or better is commercially available.

**9.2.1.3** Cylinder(s) containing approximately 10 ppmv of each of the target compounds are typically used as primary stock standards. The components may be purchased in one cylinder or in separate cylinders depending on compatibility of the compounds and the pressure of the mixture in the cylinder. Refer to manufacturer's specifications for guidance on purchasing and mixing VOCs in gas cylinders.

### 9.2.2 Preparing Working Standards.

**9.2.2.1 Instrument Performance Check Standard.** Prepare a standard solution of BFB in humidified zero air at a concentration which will allow collection of 50 ng of BFB or less under the optimized concentration parameters.

**9.2.2.2 Calibration Standards.** Prepare five working calibration standards in humidified zero air at a concentration which will allow collection at the 2, 5, 10, 20, and 50 ppbv level for each component under the optimized concentration parameters.

**9.2.2.3 Internal Standard Spiking Mixture.** Prepare an internal spiking mixture containing bromochloromethane, chlorobenzene- $d_5$ , and 1,4-difluorobenzene at 10 ppmv each in humidified zero air to be added to the sample or calibration standard. 500  $\mu$ L of this mixture spiked into 500 mL of sample will result in a concentration of 10 ppbv. The internal standard is introduced into the trap during the collection time for all calibration, blank, and sample analyses using the apparatus shown in Figure 13 or by equivalent means. The volume of internal standard spiking mixture added for each analysis must be the same from run to run.

### 9.2.3 Standard Preparation by Dynamic Dilution Technique.

**9.2.3.1** Standards may be prepared by dynamic dilution of the gaseous contents of a cylinder(s) containing the gas calibration stock standards with humidified zero air using mass flow controllers and a calibration manifold. The working standard may be delivered from the manifold to a clean, evacuated canister using a pump and mass flow controller.

**9.2.3.2** Alternatively, the analytical system may be calibrated by sampling directly from the manifold if the flow rates are optimized to provide the desired amount of calibration standards. However, the use of the canister as a reservoir prior to introduction into the concentration system resembles the procedure normally used to collect samples and is preferred. Flow rates of the dilution air and cylinder standards (all expressed in the same units) are measured using a bubble meter or calibrated electronic flow measuring device, and the concentrations of target compounds in the manifold are then calculated using the dilution ratio and the original concentration of each compound.

$$\text{Manifold Conc.} = \frac{(\text{Original Conc.}) (\text{Std. Gas Flowrate})}{(\text{Air Flowrate}) + (\text{Std. Gas Flowrate})}$$

**9.2.3.3** Consider the example of 1 mL/min flow of 10 ppmv standard diluted with 1,000 mL/min of humid air provides a nominal 10 ppbv mixture, as calculated below:

$$\text{Manifold Conc.} = \frac{(10 \text{ ppm})(1 \text{ mL/min})(1000 \text{ ppb/1 ppm})}{(1000 \text{ mL/min}) + (1 \text{ mL/min})} = 10 \text{ ppb}$$

#### 9.2.4 Standard Preparation by Static Dilution Bottle Technique

*[Note: Standards may be prepared in canisters by spiking the canister with a mixture of components prepared in a static dilution bottle (12). This technique is used specifically for liquid standards.]*

**9.2.4.1** The volume of a clean 2-liter round-bottom flask, modified with a threaded glass neck to accept a Mininert septum cap, is determined by weighing the amount of water required to completely fill up the flask. Assuming a density for the water of 1 g/mL, the weight of the water in grams is taken as the volume of the flask in milliliters.

**9.2.4.2** The flask is flushed with helium by attaching a tubing into the glass neck to deliver the helium. After a few minutes, the tubing is removed and the glass neck is immediately closed with a Mininert septum cap.

**9.2.4.3** The flask is placed in a 60°C oven and allowed to equilibrate at that temperature for about 15 minutes. Predetermined aliquots of liquid standards are injected into the flask making sure to keep the flask temperature constant at 60°C.

**9.2.4.4** The contents are allowed to equilibrate in the oven for at least 30 minutes. To avoid condensation, syringes must be preheated in the oven at the same temperature prior to withdrawal of aliquots to avoid condensation.

**9.2.4.5** Sample aliquots may then be taken for introduction into the analytical system or for further dilution. An aliquot or aliquots totaling greater than 1 percent of the flask volume should be avoided.

**9.2.4.6** Standards prepared by this method are stable for one week. The septum must be replaced with each freshly prepared standard.

**9.2.4.7** The concentration of each component in the flask is calculated using the following equation:

$$\text{Concentration, mg/L} = \frac{(V_a)(d)}{V_f}$$

where:  $V_a$  = Volume of liquid neat standard injected into the flask,  $\mu\text{L}$ .

$d$  = Density of the liquid neat standard,  $\text{mg}/\mu\text{L}$ .

$V_f$  = Volume of the flask, L.

**9.2.4.8** To obtain concentrations in ppbv, the equation given in Section 9.2.5.7 can be used.

*[Note: In the preparation of standards by this technique, the analyst should make sure that the volume of neat standard injected into the flask does not result in an overpressure due to the higher partial pressure produced by the standard compared to the vapor pressure in the flask. Precautions should also be taken to avoid a significant decrease in pressure inside the flask after withdrawal of aliquot(s).]*

#### 9.2.5 Standard Preparation Procedure in High Pressure Cylinders

*[Note: Standards may be prepared in high pressure cylinders (13). A modified summary of the procedure is provided below.]*

**9.2.5.1** The standard compounds are obtained as gases or neat liquids (greater than 98 percent purity).

**9.2.5.2** An aluminum cylinder is flushed with high-purity nitrogen gas and then evacuated to better than 25 in. Hg.

**9.2.5.3** Predetermined amounts of each neat standard compound are measured using a microliter or gastight syringe and injected into the cylinder. The cylinder is equipped with a heated injection port and nitrogen flow to facilitate sample transfer.

**9.2.5.4** The cylinder is pressurized to 1000 psig with zero nitrogen.

*[Note: User should read all SOPs associated with generating standards in high pressure cylinders. Follow all safety requirements to minimize danger from high pressure cylinders.]*

**9.2.5.5** The contents of the cylinder are allowed to equilibrate (~24 hrs) prior to withdrawal of aliquots into the GC system.

**9.2.5.6** If the neat standard is a gas, the cylinder concentration is determined using the following equation:

$$\text{Concentration, ppbv} = \frac{\text{Volume}_{\text{standard}}}{\text{Volume}_{\text{dilution gas}}} \times 10^9$$

*[Note: Both values must be expressed in the same units.]*

**9.2.5.7** If the neat standard is a liquid, the gaseous concentration can be determined using the following equations:

$$V = \frac{nRT}{P}$$

and:

$$n = \frac{(\text{mL})(d)}{\text{MW}}$$

where:

- V = Gaseous volume of injected compound at EPA standard temperature (25°C) and pressure (760 mm Hg), L.
- n = Moles.
- R = Gas constant, 0.08206 L-atm/mole °K.
- T = 298°K (standard temperature).
- P = 1 standard pressure, 760 mm Hg (1 atm).
- mL = Volume of liquid injected, mL.
- d = Density of the neat standard, g/mL.
- MW = Molecular weight of the neat standard expressed, g/g-mole.

The gaseous volume of the injected compound is divided by the cylinder volume at STP and then multiplied by 10<sup>9</sup> to obtain the component concentration in ppb units.

### 9.2.6 Standard Preparation by Water Methods.

*[Note: Standards may be prepared by a water purge and trap method (14) and summarized as follows].*

**9.2.6.1** A previously cleaned and evacuated canister is pressurized to 760 mm Hg absolute (1 atm) with zero grade air.

**9.2.6.2** The air gauge is removed from the canister and the sparging vessel is connected to the canister with the short length of 1/16 in. stainless steel tubing.

*[Note: Extra effort should be made to minimize possible areas of dead volume to maximize transfer of analytes from the water to the canister.]*

**9.2.6.3** A measured amount of the stock standard solution and the internal standard solution is spiked into 5 mL of water.

**9.2.6.4** This water is transferred into the sparge vessel and purged with nitrogen for 10 mins at 100 mL/min. The sparging vessel is maintained at 40°C.

**9.2.6.5** At the end of 10 mins, the sparge vessel is removed and the air gauge is re-installed, to further pressurize the canister with pure nitrogen to 1500 mm Hg absolute pressure (approximately 29 psia).

**9.2.6.6** The canister is allowed to equilibrate overnight before use.

**9.2.6.7** A schematic of this approach is shown in Figure 14.

### 9.2.7 Preparation of Standards by Permeation Tubes.

**9.2.7.1** Permeation tubes can be used to provide standard concentration of a trace gas or gases. The permeation of the gas can occur from inside a permeation tube containing the trace species of interest to an air stream outside. Permeation can also occur from outside a permeable membrane tube to an air stream passing through the tube (e.g., a tube of permeable material immersed in a liquid).

**9.2.7.2** The permeation system is usually held at a constant temperature to generate a constant concentration of trace gas. Commercial suppliers provide systems for generation and dilution of over 250 compounds. Some commercial suppliers of permeation tube equipment are listed in Appendix D.

### 9.2.8 Storage of Standards.

**9.2.8.1** Working standards prepared in canisters may be stored for thirty days in an atmosphere free of potential contaminants.

**9.2.8.2** It is imperative that a storage logbook be kept to document storage time.

## 10. GC/MS Operating Conditions

### 10.1 Preconcentrator

The following are typical cryogenic and adsorbent preconcentrator analytical conditions which, however, depend on the specific combination of solid sorbent and must be selected carefully by the operator. The reader is referred to Tables 1 and 2 of Compendium Method TO-17 for guidance on selection of sorbents. An example of a system using a solid adsorbent preconcentrator with a cryofocusing trap is discussed in the literature (15). Oven temperature programming starts above ambient.

#### 10.1.1 Sample Collection Conditions

##### Cryogenic Trap

##### Adsorbent Trap

Set point	-150°C	Set point	27°C
Sample volume	- up to 100 mL	Sample volume	- up to 1,000 mL
Carrier gas purge flow	- none	Carrier gas purge flow	- selectable

[*Note: The analyst should optimize the flow rate, duration of sampling, and absolute sample volume to be used. Other preconcentration systems may be used provided performance standards (see Section 11) are realized.*]

### 10.1.2 Desorption Conditions

#### Cryogenic Trap

Desorb Temperature	120°C
Desorb Flow Rate	~ 3 mL/min He
Desorb Time	<60 sec

#### Adsorbent Trap

Desorb Temperature	Variable
Desorb Flow Rate	~3 mL/min He
Desorb Time	<60 sec

The adsorbent trap conditions depend on the specific solid adsorbents chosen (see manufacturers' specifications).

### 10.1.3 Trap Reconditioning Conditions.

#### Cryogenic Trap

Initial bakeout	120°C (24 hrs)
Variable (24 hrs)	
After each run	120°C (5 min)

#### Adsorbent Trap

Initial bakeout	
After each run	Variable (5 min)

## 10.2 GC/MS System

**10.2.1** Optimize GC conditions for compound separation and sensitivity. Baseline separation of benzene and carbon tetrachloride on a 100% methyl polysiloxane stationary phase is an indication of acceptable chromatographic performance.

**10.2.2** The following are the recommended gas chromatographic analytical conditions when using a 50-meter by 0.3-mm I.D., 1 µm film thickness fused silica column with refocusing on the column.

<u>Item</u>	<u>Condition</u>
Carrier Gas:	Helium
Flow Rate:	Generally 1-3 mL/min as recommended by manufacturer
Temperature Program:	Initial Temperature: -50°C
	Initial Hold Time: 2 min
	Ramp Rate: 8° C/min
	Final Temperature: 200°C
	Final Hold Time: Until all target compounds elute.

**10.2.3** The following are the recommended mass spectrometer conditions:

<u>Item</u>	<u>Condition</u>
-------------	------------------

Electron Energy:	70 Volts (nominal)
Mass Range:	35-300 amu [the choice of 35 amu excludes the detection of some target compounds such as methanol and formaldehyde, and the quantitation of others such as ethylene oxide, ethyl carbamate, etc. (see Table 2). Lowering the mass range and using special programming features available on modern gas chromatographs will be necessary in these cases, but are not considered here.
Scan Time:	To give at least 10 scans per peak, not to exceed 1 second per scan].

A schematic for a typical GC/MS analytical system is illustrated in Figure 15.

### 10.3 Analytical Sequence

**10.3.1 Introduction.** The recommended GC/MS analytical sequence for samples during each 24-hour time period is as follows:

- Perform instrument performance check using bromofluorobenzene (BFB).
- Initiate multi-point calibration or daily calibration checks.
- Perform a laboratory method blank.
- Complete this sequence for analysis of  $\leq 20$  field samples.

### 10.4 Instrument Performance Check

**10.4.1 Summary.** It is necessary to establish that a given GC/MS meets tuning and standard mass spectral abundance criteria prior to initiating any data collection. The GC/MS system is set up according to the manufacturer's specifications, and the mass calibration and resolution of the GC/MS system are then verified by the analysis of the instrument performance check standard, bromofluorobenzene (BFB).

**10.4.2 Frequency.** Prior to the analyses of any samples, blanks, or calibration standards, the Laboratory must establish that the GC/MS system meets the mass spectral ion abundance criteria for the instrument performance check standard containing BFB. The instrument performance check solution must be analyzed initially and once per 24-hour time period of operation.

The 24-hour time period for GC/MS instrument performance check and standards calibration (initial calibration or daily calibration check criteria) begins at the injection of the BFB which the laboratory records as documentation of a compliance tune.

**10.4.3 Procedure.** The analysis of the instrument performance check standard is performed by trapping 50 ng of BFB under the optimized preconcentration parameters. The BFB is introduced from a cylinder into the GC/MS via a sample loop valve injection system similar to that shown in Figure 13.

The mass spectrum of BFB must be acquired in the following manner. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged. Background subtraction is conducted using a single scan prior to the elution of BFB.

**10.4.4 Technical Acceptance Criteria.** Prior to the analysis of any samples, blanks, or calibration standards, the analyst must establish that the GC/MS system meets the mass spectral ion abundance criteria for the instrument performance check standard as specified in Table 3.

**10.4.5 Corrective Action.** If the BFB acceptance criteria are not met, the MS must be retuned. It may be necessary to clean the ion source, or quadrupoles, or take other necessary actions to achieve the acceptance criteria.

**10.4.6 Documentation.** Results of the BFB tuning are to be recorded and maintained as part of the instrumentation log.

## 10.5 Initial Calibration

**10.5.1 Summary.** Prior to the analysis of samples and blanks but after the instrument performance check standard criteria have been met, each GC/MS system must be calibrated at five concentrations that span the monitoring range of interest in an initial calibration sequence to determine instrument sensitivity and the linearity of GC/MS response for the target compounds. For example, the range of interest may be 2 to 20 ppbv, in which case the five concentrations would be 1, 2, 5, 10 and 25 ppbv.

One of the calibration points from the initial calibration curve must be at the same concentration as the daily calibration standard (e.g., 10 ppbv).

**10.5.2 Frequency.** Each GC/MS system must be recalibrated following corrective action (e.g., ion source cleaning or repair, column replacement, etc.) which may change or affect the initial calibration criteria or if the daily calibration acceptance criteria have not been met.

If time remains in the 24-hour time period after meeting the acceptance criteria for the initial calibration, samples may be analyzed.

If time does not remain in the 24-hour period after meeting the acceptance criteria for the initial calibration, a new analytical sequence shall commence with the analysis of the instrument performance check standard followed by analysis of a daily calibration standard.

**10.5.3 Procedure.** Verify that the GC/MS system meets the instrument performance criteria in Section 10.4.

The GC must be operated using temperature and flow rate parameters equivalent to those in Section 10.2.2. Calibrate the preconcentration-GC/MS system by drawing the standard into the system. Use one of the standards preparation techniques described under Section 9.2 or equivalent.

A minimum of five concentration levels are needed to determine the instrument sensitivity and linearity. One of the calibration levels should be near the detection level for the compounds of interest. The calibration range should be chosen so that linear results are obtained as defined in Sections 10.5.1 and 10.5.5.

Quantitation ions for the target compounds are shown in Table 2. The primary ion should be used unless interferences are present, in which case a secondary ion is used.

### 10.5.4 Calculations.

*[Note: In the following calculations, an internal standard approach is used to calculate response factors. The area response used is that of the primary quantitation ion unless otherwise stated.]*

**10.5.4.1 Relative Response Factor (RRF).** Calculate the relative response factors for each target compound relative to the appropriate internal standard (i.e., standard with the nearest retention time) using the following equation:

$$\text{RRF} = \frac{A_x C_{is}}{A_{is} C_x}$$

where: RRF = Relative response factor.  
 $A_x$  = Area of the primary ion for the compound to be measured, counts.  
 $A_{is}$  = Area of the primary ion for the internal standard, counts.  
 $C_{is}$  = Concentration of internal standard spiking mixture, ppbv.  
 $C_x$  = Concentration of the compound in the calibration standard, ppbv.

[*Note: The equation above is valid under the condition that the volume of internal standard spiking mixture added in all field and QC analyses is the same from run to run, and that the volume of field and QC sample introduced into the trap is the same for each analysis.  $C_{is}$  and  $C_x$  must be in the same units.*]

**10.5.4.2 Mean Relative Response Factor.** Calculate the mean RRF for each compound by averaging the values obtained at the five concentrations using the following equation:

$$\overline{RRF} = \sum_{i=1}^n \frac{x_i}{n}$$

where:  $\overline{RRF}$  = Mean relative response factor.  
 $x_i$  = RRF of the compound at concentration  $i$ .  
 $n$  = Number of concentration values, in this case 5.

**10.5.4.3 Percent Relative Standard Deviation (%RSD).** Using the RRFs from the initial calibration, calculate the %RSD for all target compounds using the following equations:

$$\%RSD = \frac{SD_{RRF}}{\overline{RRF}} \times 100$$

and

$$SD_{RRF} = \sqrt{\sum_{i=1}^N \frac{(RRF_i - \overline{RRF})^2}{N - 1}}$$

where:  $SD_{RRF}$  = Standard deviation of initial response factors (per compound).  
 $RRF_i$  = Relative response factor at a concentration level  $i$ .  
 $\overline{RRF}$  = Mean of initial relative response factors (per compound).

**10.5.4.4 Relative Retention Times (RRT).** Calculate the RRTs for each target compound over the initial calibration range using the following equation:

$$RRT = \frac{RT_c}{RT_{is}}$$

where:  $RT_c$  = Retention time of the target compound, seconds  
 $RT_{is}$  = Retention time of the internal standard, seconds.

**10.5.4.5 Mean of the Relative Retention Times ( $\overline{RRT}$ ).** Calculate the mean of the relative retention times ( $\overline{RRT}$ ) for each analyte target compound over the initial calibration range using the following equation:

$$\overline{\text{RRT}} = \sum_{i=1}^n \frac{\text{RRT}}{n}$$

where:  $\overline{\text{RRT}}$  = Mean relative retention time for the target compound for each initial calibration standard.

RRT = Relative retention time for the target compound at each calibration level.

**10.5.4.6 Tabulate Primary Ion Area Response (Y) for Internal Standard.** Tabulate the area response (Y) of the primary ions (see Table 2) and the corresponding concentration for each compound and internal standard.

**10.5.4.7 Mean Area Response ( $\bar{Y}$ ) for Internal Standard.** Calculate the mean area response ( $\bar{Y}$ ) for each internal standard compound over the initial calibration range using the following equation:

$$\bar{Y} = \sum_{i=1}^n \frac{Y_i}{n}$$

where:  $\bar{Y}$  = Mean area response.

Y = Area response for the primary quantitation ion for the internal standard for each initial calibration standard.

**10.5.4.8 Mean Retention Times ( $\overline{\text{RT}}$ ).** Calculate the mean of the retention times ( $\overline{\text{RT}}$ ) for each internal standard over the initial calibration range using the following equation:

$$\overline{\text{RT}} = \sum_{i=1}^n \frac{\text{RT}_i}{n}$$

where:  $\overline{\text{RT}}$  = Mean retention time, seconds

RT = Retention time for the internal standard for each initial calibration standard, seconds.

### 10.5.5 Technical Acceptance Criteria for the Initial Calibration.

**10.5.5.1** The calculated %RSD for the RRF for each compound in the calibration table must be less than 30% with at most two exceptions up to a limit of 40%.

*[Note: This exception may not be acceptable for all projects. Many projects may have a specific target list of compounds which would require the lower limit for all compounds.]*

**10.5.5.2** The RRT for each target compound at each calibration level must be within 0.06 RRT units of the mean RRT for the compound.

**10.5.5.3** The area response Y of at each calibration level must be within 40% of the mean area response  $\bar{Y}$  over the initial calibration range for each internal standard.

**10.5.5.4** The retention time shift for each of the internal standards at each calibration level must be within 20 s of the mean retention time over the initial calibration range for each internal standard.

### 10.5.6 Corrective Action.

**10.5.6.1 Criteria.** If the initial calibration technical acceptance criteria are not met, inspect the system for problems. It may be necessary to clean the ion source, change the column, or take other corrective actions to meet the initial calibration technical acceptance criteria.

**10.5.6.2 Schedule.** Initial calibration acceptance criteria must be met before any field samples, performance evaluation (PE) samples, or blanks are analyzed.

## 10.6 Daily Calibration

**10.6.1 Summary.** Prior to the analysis of samples and blanks but after tuning criteria have been met, the initial calibration of each GC/MS system must be routinely checked by analyzing a daily calibration standard to ensure that the instrument continues to remain under control. The daily calibration standard, which is the nominal 10 ppbv level calibration standard, should contain all the target compounds.

**10.6.2 Frequency.** A check of the calibration curve must be performed once every 24 hours on a GC/MS system that has met the tuning criteria. The daily calibration sequence starts with the injection of the BFB. If the BFB analysis meets the ion abundance criteria for BFB, then a daily calibration standard may be analyzed.

**10.6.3 Procedure.** The mid-level calibration standard (10 ppbv) is analyzed in a GC/MS system that has met the tuning and mass calibration criteria following the same procedure in Section 10.5.

**10.6.4 Calculations.** Perform the following calculations.

*[Note: As indicated earlier, the area response of the primary quantitation ion is used unless otherwise stated.]*

**10.6.4.1 Relative Response Factor (RRF).** Calculate a relative response factor (RRF) for each target compound using the equation in Section 10.5.4.1.

**10.6.4.2 Percent Difference (%D).** Calculate the percent difference in the RRF of the daily RRF (24-hour) compared to the mean RRF in the most recent initial calibration. Calculate the %D for each target compound using the following equation:

$$\%D = \frac{RRF_c - \overline{RRF}_i}{\overline{RRF}_i} \times 100$$

where:  $RRF_c$  = RRF of the compound in the continuing calibration standard.

$\overline{RRF}_i$  = Mean RRF of the compound in the most recent initial calibration.

**10.6.5 Technical Acceptance Criteria.** The daily calibration standard must be analyzed at the concentration level and frequency described in this Section 10.6 and on a GC/MS system meeting the BFB instrument performance check criteria (see Section 10.4).

The %D for each target compound in a daily calibration sequence must be within  $\pm 30$  percent in order to proceed with the analysis of samples and blanks. A control chart showing %D values should be maintained.

**10.6.6 Corrective Action.** If the daily calibration technical acceptance criteria are not met, inspect the system for problems. It may be necessary to clean the ion source, change the column, or take other corrective actions to meet the daily calibration technical acceptance criteria.

Daily calibration acceptance criteria must be met before any field samples, performance evaluation (PE) samples, or blanks are analyzed. If the % D criteria are not met, it will be necessary to rerun the daily calibration sample.

## 10.7 Blank Analyses

**10.7.1 Summary.** To monitor for possible laboratory contamination, laboratory method blanks are analyzed at least once in a 24-hour analytical sequence. All steps in the analytical procedure are performed on the blank

using all reagents, standards, equipment, apparatus, glassware, and solvents that would be used for a sample analysis.

A laboratory method blank (LMB) is an unused, certified canister that has not left the laboratory. The blank canister is pressurized with humidified, ultra-pure zero air and carried through the same analytical procedure as a field sample. The injected aliquot of the blank must contain the same amount of internal standards that are added to each sample.

**10.7.2 Frequency.** The laboratory method blank must be analyzed after the calibration standard(s) and before any samples are analyzed.

Whenever a high concentration sample is encountered (i.e., outside the calibration range), a blank analysis should be performed immediately after the sample is completed to check for carryover effects.

**10.7.3 Procedure.** Fill a cleaned and evacuated canister with humidified zero air (RH >20 percent, at 25°C). Pressurize the contents to 2 atm.

The blank sample should be analyzed using the same procedure outlined under Section 10.8.

**10.7.4 Calculations.** The blanks are analyzed similar to a field sample and the equations in Section 10.5.4 apply.

**10.7.5 Technical Acceptance Criteria.** A blank canister should be analyzed daily.

The area response for each internal standard (IS) in the blank must be within  $\pm 40$  percent of the mean area response of the IS in the most recent valid calibration.

The retention time for each of the internal standards must be within  $\pm 0.33$  minutes between the blank and the most recent valid calibration.

The blank should not contain any target analyte at a concentration greater than its quantitation level (three times the MDL as defined in Section 11.2) and should not contain additional compounds with elution characteristics and mass spectral features that would interfere with identification and measurement of a method analyte.

**10.7.6 Corrective Action.** If the blanks do not meet the technical acceptance criteria, the analyst should consider the analytical system to be out of control. It is the responsibility of the analyst to ensure that contaminants in solvents, reagents, glassware, and other sample storage and processing hardware that lead to discrete artifacts and/or elevated baselines in gas chromatograms be eliminated. If contamination is a problem, the source of the contamination must be investigated and appropriate corrective measures need to be taken and documented before further sample analysis proceeds.

If an analyte in the blank is found to be out of control (i.e., contaminated) and the analyte is also found in associated samples, those sample results should be "flagged" as possibly contaminated.

## 10.8 Sample Analysis

**10.8.1 Summary.** An aliquot of the air sample from a canister (e.g., 500 mL) is preconcentrated and analyzed by GC/MS under conditions stated in Sections 10.1 and 10.2. If using the multisorbent/dry purge approach, adjust the dry purge volume to reduce water effects in the analytical system to manageable levels.

*[Note: The analyst should be aware that pressurized samples of high humidity samples will contain condensed water. As a result, the humidity of the sample released from the canister during analysis will vary*

*in humidity, being lower at the higher canister pressures and increasing in humidity as the canister pressures decreases. Storage integrity of water soluble compounds may also be affected.]*

**10.8.2 Frequency.** If time remains in the 24-hour period in which an initial calibration is performed, samples may be analyzed without analysis of a daily calibration standard.

If time does not remain in the 24-hour period since the injection of the instrument performance check standard in which an initial calibration is performed, both the instrument performance check standard and the daily calibration standard should be analyzed before sample analysis may begin.

**10.8.3 Procedure for Instrumental Analysis.** Perform the following procedure for analysis.

**10.8.3.1** All canister samples should be at temperature equilibrium with the laboratory.

**10.8.3.2** Check and adjust the mass flow controllers to provide correct flow rates for the system.

**10.8.3.3** Connect the sample canister to the inlet of the GC/MS analytical system, as shown in Figure 15 [Figure 16 shows an alternate two stage concentrator using multisorbent traps followed by a trap cooled by a closed cycle cooler (15)]. The desired sample flow is established through the six-port chromatographic valve and the preconcentrator to the downstream flow controller. The absolute volume of sample being pulled through the trap must be consistent from run to run.

**10.8.3.4** Heat/cool the GC oven and cryogenic or adsorbent trap to their set points. Assuming a six-port valve is being used, as soon as the trap reaches its lower set point, the six-port chromatographic valve is cycled to the trap position to begin sample collection. Utilize the sample collection time which has been optimized by the analyst.

**10.8.3.5** Use the arrangement shown in Figure 13, (i.e., a gastight syringe or some alternate method) introduce an internal standard during the sample collection period. Add sufficient internal standard equivalent to 10 ppbv in the sample. For example, a 0.5 mL volume of a mixture of internal standard compounds, each at 10 ppmv concentration, added to a sample volume of 500 mL, will result in 10 ppbv of each internal standard in the sample.

**10.8.3.6** After the sample and internal standards are preconcentrated on the trap, the GC sampling valve is cycled to the inject position and the trap is swept with helium and heated. Assuming a focusing trap is being used, the trapped analytes are thermally desorbed onto a focusing trap and then onto the head of the capillary column and are separated on the column using the GC oven temperature program. The canister valve is closed and the canister is disconnected from the mass flow controller and capped. The trap is maintained at elevated temperature until the beginning of the next analysis.

**10.8.3.7** Upon sample injection onto the column, the GC/MS system is operated so that the MS scans the atomic mass range from 35 to 300 amu. At least ten scans per eluting chromatographic peak should be acquired. Scanning also allows identification of unknown compounds in the sample through searching of library spectra.

**10.8.3.8** Each analytical run must be checked for saturation. The level at which an individual compound will saturate the detection system is a function of the overall system sensitivity and the mass spectral characteristics of that compound.

**10.8.3.9** Secondary ion quantitation is allowed only when there are sample matrix interferences with the primary ion. If secondary ion quantitation is performed, document the reasons in the laboratory record book.

**10.8.4 Calculations.** The equation below is used for calculating concentrations.

$$C_x = \frac{A_x C_{is} DF}{A_{is} RRF}$$

where:  $C_x$  = Compound concentration, ppbv.

$A_x$  = Area of the characteristic ion for the compound to be measured, counts.

$A_{is}$  = Area of the characteristic ion for the specific internal standard, counts.

$C_{is}$  = Concentration of the internal standard spiking mixture, ppbv

$\overline{RRF}$  = Mean relative response factor from the initial calibration.

DF = Dilution factor calculated as described in section 2. If no dilution is performed, DF = 1.

*[Note: The equation above is valid under the condition that the volume (~500  $\mu$ L) of internal standard spiking mixture added in all field and QC analyses is the same from run to run, and that the volume (~500 mL) of field and QC sample introduced into the trap is the same for each analysis.]*

#### 10.8.5 Technical Acceptance Criteria.

*[Note: If the most recent valid calibration is an initial calibration, internal standard area responses and RTs in the sample are evaluated against the corresponding internal standard area responses and RTs in the mid level standard (10 ppbv) of the initial calibration.]*

**10.8.5.1** The field sample must be analyzed on a GC/MS system meeting the BFB tuning, initial calibration, and continuing calibration technical acceptance criteria at the frequency described in Sections 10.4, 10.5 and 10.6.

**10.8.5.2** The field samples must be analyzed along with a laboratory method blank that met the blank technical acceptance criteria.

**10.8.5.3** All of the target analyte peaks should be within the initial calibration range.

**10.8.5.4** The retention time for each internal standard must be within  $\pm 0.33$  minutes of the retention time of the internal standard in the most recent valid calibration.

**10.8.6 Corrective Action.** If the on-column concentration of any compound in any sample exceeds the initial calibration range, an aliquot of the original sample must be diluted and reanalyzed. Guidance in performing dilutions and exceptions to this requirement are given below.

- Use the results of the original analysis to determine the approximate dilution factor required to get the largest analyte peak within the initial calibration range.
- The dilution factor chosen should keep the response of the largest analyte peak for a target compound in the upper half of the initial calibration range of the instrument.

*[Note: Analysis involving dilution should be reported with a dilution factor and nature of the dilution gas.]*

**10.8.6.1** Internal standard responses and retention times must be evaluated during or immediately after data acquisition. If the retention time for any internal standard changes by more than 20 sec from the latest daily (24-hour) calibration standard (or mean retention time over the initial calibration range), the GC/MS system must be inspected for malfunctions, and corrections made as required.

**10.8.6.2** If the area response for any internal standard changes by more than  $\pm 40$  percent between the sample and the most recent valid calibration, the GC/MS system must be inspected for malfunction and

corrections made as appropriate. When corrections are made, reanalysis of samples analyzed while the system was malfunctioning is necessary.

**10.8.6.3** If, after reanalysis, the area responses or the RTs for all internal standards are inside the control limits, then the problem with the first analysis is considered to have been within the control of the Laboratory. Therefore, submit only data from the analysis with SICPs within the limits. This is considered the initial analysis and should be reported as such on all data deliverables.

## 11. Requirements for Demonstrating Method Acceptability for VOC Analysis from Canisters

### 11.1 Introduction

**11.1.1** There are three performance criteria which must be met for a system to qualify under Compendium Method TO-15. These criteria are: the method detection limit of  $\leq 0.5$  ppbv, replicate precision within 25 percent, and audit accuracy within 30 percent for concentrations normally expected in contaminated ambient air (0.5 to 25 ppbv).

**11.1.2** Either SIM or SCAN modes of operation can be used to achieve these criteria, and the choice of mode will depend on the number of target compounds, the decision of whether or not to determine tentatively identified compounds along with other VOCs on the target list, as well as on the analytical system characteristics.

**11.1.3** Specific criteria for each Title III compound on the target compound list must be met by the analytical system. These criteria were established by examining summary data from EPA's Toxics Air Monitoring System Network and the Urban Air Toxics Monitoring Program network. Details for the determination of each of the criteria follow.

### 11.2 Method Detection Limit

**11.2.1** The procedure chosen to define the method detection limit is that given in the *Code of Federal Regulations* (40 CFR 136 Appendix B).

**11.2.2** The method detection limit is defined for each system by making seven replicate measurements of the compound of interest at a concentration near (within a factor of five) the expected detection limit, computing the standard deviation for the seven replicate concentrations, and multiplying this value by 3.14 (i.e., the Student's *t* value for 99 percent confidence for seven values). Employing this approach, the detection limits given in Table 4 were obtained for some of the VOCs of interest.

### 11.3 Replicate Precision

**11.3.1** The measure of replicate precision used for this program is the absolute value of the difference between replicate measurements of the sample divided by the average value and expressed as a percentage as follows:

$$\text{percent difference} = \frac{|x_1 - x_2|}{\bar{x}} \times 100$$

where:

- $x_1$  = First measurement value.
- $x_2$  = Second measurement value.
- $\bar{x}$  = Average of the two values.

**11.3.2** There are several factors which may affect the precision of the measurement. The nature of the compound of interest itself such as molecular weight, water solubility, polarizability, etc., each have some effect on the precision, for a given sampling and analytical system. For example, styrene, which is classified as a polar VOC, generally shows slightly poorer precision than the bulk of nonpolar VOCs. A primary influence on precision is the concentration level of the compound of interest in the sample, i.e., the precision degrades as the concentration approaches the detection limit. A conservative measure was obtained from replicate analysis of "real world" canister samples from the TAMS and UATMP networks. These data are summarized in Table 5 and suggest that a replicate precision value of 25 percent can be achieved for each of the target compounds.

## 11.4 Audit Accuracy

**11.4.1** A measure of analytical accuracy is the degree of agreement with audit standards. Audit accuracy is defined as the difference between the nominal concentration of the audit compound and the measured value divided by the audit value and expressed as a percentage, as illustrated in the following equation:

$$\text{Audit Accuracy, \%} = \frac{\text{Spiked Value} - \text{Observed Value}}{\text{Spiked Value}} \times 100$$

**11.4.2** Audit accuracy results for TAMS and UATMP analyses are summarized in Table 6 and were used to form the basis for a selection of 30 percent as the performance criterion for audit accuracy.

## 12. References

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**APPENDIX A.****LISTING OF SOME COMMERCIAL WATER  
MANAGEMENT SYSTEMS USED WITH AUTOGC SYSTEMS**

Tekmar Dohrman Company  
7143 East Kemper Road  
Post Office Box 429576  
Cincinnati, Ohio 45242-9576  
(513) 247-7000  
(513) 247-7050 (Fax)  
(800) 543-4461  
[Moisture control module]

Entech Laboratory Automation  
950 Enchanted Way No. 101  
Simi Valley, California 93065  
(805) 527-5939  
(805) 527-5687 (Fax)  
[Microscale Purge and Trap]

Dynatherm Analytical Instruments  
Post Office Box 159  
Kelton, Pennsylvania 19346  
(215) 869-8702  
(215) 869-3885 (Fax)  
[Thermal Desorption System]

XonTech Inc.  
6862 Hayenhurst Avenue  
Van Nuys, CA 91406  
(818) 787-7380  
(818) 787-4275 (Fax)  
[Multi-adsorbent trap/dry purge]

Graseby  
500 Technology Ct.  
Smyrna, Georgia 30082  
(770) 319-9999  
(770) 319-0336 (Fax)  
(800) 241-6898  
[Controlled Desorption Trap]

Varian Chromatography System  
2700 Mitchell Drive  
Walnut Creek, California 94898  
(510) 945-2196  
(510) 945-2335 (FAX)  
[Variable Temperature Adsorption Trap]

**APPENDIX B.****COMMENT ON CANISTER CLEANING PROCEDURES**

The canister cleaning procedures given in Section 8.4 require that canister pressure be reduced to <0.05mm Hg before the cleaning process is complete. Depending on the vacuum system design (diameter of connecting tubing, valve restrictions, etc.) and the placement of the vacuum gauge, the achievement of this value may take several hours. In any case, the pressure gauge should be placed near the canisters to determine pressure. The objective of requiring a low pressure evacuation during canister cleaning is to reduce contaminants. If canisters can be routinely certified (<0.2 ppbv for target compounds) while using a higher vacuum, then this criteria can be relaxed. However, the ultimate vacuum achieved during cleaning should always be <0.2mm Hg.

Canister cleaning as described in Section 8.4 and illustrated in Figure 10 requires components with special features. The vacuum gauge shown in Figure 10 must be capable of measuring 0.05mm Hg with less than a 20% error. The vacuum pump used for evacuating the canister must be noncontaminating while being capable of achieving the 0.05 mm Hg vacuum as monitored near the canisters. Thermoelectric vacuum gauges and turbomolecular drag pumps are typically being used for these two components.

An alternate to achieving the canister certification requirement of <0.2 ppbv for all target compounds is the criteria used in Compendium Method TO-12 that the total carbon count be <10ppbC. This check is less expensive and typically more exacting than the current certification requirement and can be used if proven to be equivalent to the original requirement. This equivalency must be established by comparing the total nonmethane organic carbon (TNMOC) expressed in ppbC to the requirement that individual target compounds be <0.2 ppbv for a series of analytical runs.

**APPENDIX C.****LISTING OF COMMERCIAL MANUFACTURERS AND RE-SUPPLIERS OF  
SPECIALLY-PREPARED CANISTERS**

BRC/Rasmussen  
17010 NW Skyline Blvd.  
Portland, Oregon 97321  
(503) 621-1435

Meriter  
1790 Potrero Drive  
San Jose, CA 95124  
(408) 265-6482

Restek Corporation  
110 Benner Circle  
Bellefonte, PA 16823-8812  
(814) 353-1300  
(800) 356-1688

Scientific Instrumentation Specialists  
P.O. Box 8941  
815 Courtney Street  
Moscow, ID 83843  
(208) 882-3860

Graseby  
500 Technology Ct.  
Smyrna, Georgia 30082  
(404) 319-9999  
(800) 241-6898

XonTech Inc.  
6862 Hayenhurst Avenue  
Van Nuys, CA 91406  
(818) 787-7380

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**APPENDIX D.****LISTING OF COMMERCIAL SUPPLIERS OF PERMEATION TUBES AND SYSTEMS**

Kin-Tek  
504 Laurel St.  
Lamarque, Texas 77568  
(409) 938-3627  
(800) 326-3627

Vici Metronics, Inc.  
2991 Corvin Drive  
Santa Clara, CA 95051  
(408) 737-0550

Analytical Instrument Development, Inc.  
Rt. 41 and Newark Rd.  
Avondale, PA 19311  
(215) 268-3181

Ecology Board, Inc.  
9257 Independence Ave.  
Chatsworth, CA 91311  
(213) 882-6795

Tracor, Inc.  
6500 Tracor Land  
Austin, TX  
(512) 926-2800

Metronics Associates, Inc.  
3201 Porter Drive  
Standford Industrial Park  
Palo Alto, CA 94304  
(415) 493-5632

TABLE 1. VOLATILE ORGANIC COMPOUNDS ON THE TITLE III CLEAN AIR AMENDMENT LIST--  
MEMBERSHIP IN COMPENDIUM METHOD TO-14A LIST AND THE SOW-CLP LIST OF VOCs

Compound	CAS No.	BP (°C)	v.p. (mmHg) <sup>1</sup>	MW <sup>1</sup>	TO-14A	CLP-SOW
Methyl chloride (chloromethane); CH <sub>3</sub> Cl	74-87-3	-23.7	3.8 x 10	50.5	X	X
Carbonyl sulfide; COS	463-58-1	-50.0	3.7 x 10	60.1		
Vinyl chloride (chloroethene); C <sub>2</sub> H <sub>3</sub> Cl	75-01-4	-14.0	3.2 x 10	62.5	X	X
Diazomethane; CH <sub>2</sub> N <sub>2</sub>	334-88-3	-23.0	2.8 x 10	42.1		
Formaldehyde; CH <sub>2</sub> O	50-00-0	-19.5	2.7 x 10	30		
1,3-Butadiene; C <sub>4</sub> H <sub>6</sub>	106-99-0	-4.5	2.0 x 10	54		X
Methyl bromide (bromomethane); CH <sub>3</sub> Br	74-83-9	3.6	1.8 x 10	94.9	X	X
Phosgene; CCl <sub>2</sub> O	75-44-5	8.2	1.2 x 10	99		
Vinyl bromide (bromoethene); C <sub>2</sub> H <sub>3</sub> Br	593-60-2	15.8	1.1 x 10	107		
Ethylene oxide; C <sub>2</sub> H <sub>4</sub> O	75-21-8	10.7	1.1 x 10	44		
Ethyl chloride (chloroethane); C <sub>2</sub> H <sub>5</sub> Cl	75-00-3	12.5	1.0 x 10	64.5	X	X
Acetaldehyde (ethanal); C <sub>2</sub> H <sub>4</sub> O	75-07-0	21.0	952	44		
Vinylidene chloride (1,1-dichloroethylene); C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	75-35-4	31.7	500	97	X	X
Propylene oxide; C <sub>3</sub> H <sub>6</sub> O	75-56-9	34.2	445	58		
Methyl iodide (iodomethane); CH <sub>3</sub> I	74-88-4	42.4	400	141.9		
Methylene chloride; CH <sub>2</sub> Cl <sub>2</sub>	75-09-2	40.0	349	84.9	X	X
Methyl isocyanate; C <sub>2</sub> H <sub>3</sub> NO	624-83-9	59.6	348	57.1		
Allyl chloride (3-chloropropene); C <sub>3</sub> H <sub>5</sub> Cl	107-05-1	44.5	340	76.5	X	X
Carbon disulfide; CS <sub>2</sub>	75-15-0	46.5	260	76		
Methyl tert-butyl ether; C <sub>5</sub> H <sub>12</sub> O	1634-04-4	55.2	249	86		
Propionaldehyde; C <sub>2</sub> H <sub>5</sub> CHO	123-38-6	49.0	235	58.1		
Ethylidene dichloride (1,1-dichloroethane); C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	75-34-3	57.0	230	99	X	

TABLE 1. (continued)

Compound	CAS No.	BP (°C)	v.p. (mmHg)	MW <sup>1</sup>	TO-14A	CLP-SOW
Chloroprene (2-chloro-1,3-butadiene); C <sub>4</sub> H <sub>5</sub> Cl	126-99-8	59.4	226	88.5		
Chloromethyl methyl ether; C <sub>2</sub> H <sub>5</sub> ClO	107-30-2	59.0	224	80.5		
Acrolein (2-propenal); C <sub>3</sub> H <sub>4</sub> O	107-02-8	52.5	220	56		X
1,2-Epoxybutane (1,2-butylene oxide); C <sub>4</sub> H <sub>8</sub> O	106-88-7	63.0	163	72		
Chloroform; CHCl <sub>3</sub>	67-66-3	61.2	160	119	X	X
Ethyleneimine (aziridine); C <sub>2</sub> H <sub>5</sub> N	151-56-4	56	160.0	43		
1,1-Dimethylhydrazine; C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>	57-14-7	63	157.0	60.0		
Hexane; C <sub>6</sub> H <sub>14</sub>	110-54-3	69.0	120	86.2	X	
1,2-Propyleneimine (2-methylaziridine); C <sub>3</sub> H <sub>7</sub> N	75-55-8	66.0	112	57.1		
Acrylonitrile (2-propenenitrile); C <sub>3</sub> H <sub>3</sub> N	107-13-1	77.3	100	53	X	
Methyl chloroform (1,1,1-trichloroethane); C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	71-55-6	74.1	100	133.4	X	X
Methanol; CH <sub>4</sub> O	67-56-1	65.0	92.0	32		X
Carbon tetrachloride; CCl <sub>4</sub>	56-23-5	76.7	90.0	153.8	X	X
Vinyl acetate; C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	108-05-4	72.2	83.0	86		X
Methyl ethyl ketone (2-butanone); C <sub>4</sub> H <sub>8</sub> O	78-93-3	79.6	77.5	72		X
Benzene; C <sub>6</sub> H <sub>6</sub>	71-43-2	80.1	76.0	78	X	X
Acetonitrile (cyanomethane); C <sub>2</sub> H <sub>3</sub> N	75-05-8	82	74.0	41.0		X
Ethylene dichloride (1,2-dichloroethane); C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	107-06-2	83.5	61.5	99	X	X
Triethylamine; C <sub>6</sub> H <sub>15</sub> N	121-44-8	89.5	54.0	101.2		
Methylhydrazine; CH <sub>6</sub> N <sub>2</sub>	60-34-4	87.8	49.6	46.1		
Propylene dichloride (1,2-dichloropropane); C <sub>3</sub> H <sub>6</sub> Cl <sub>2</sub>	78-87-5	97.0	42.0	113	X	X
2,2,4-Trimethyl pentane C <sub>8</sub> H <sub>18</sub>	540-84-1	99.2	40.6	114		
1,4-Dioxane (1,4-Diethylene oxide); C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	123-91-1	101	37.0	88		
Bis(chloromethyl) ether; C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub> O	542-88-1	104	30.0	115		
Ethyl acrylate; C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	140-88-5	100	29.3	100		
Methyl methacrylate; C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	80-62-6	101	28.0	100.1		

TABLE 1. (continued)

Compound	CAS No.	BP (°C)	v.p. (mmHg) <sup>j</sup>	MW <sup>i</sup>	TO-14A	CLP-SOW
Methyl methacrylate; C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	80-62-101	101	28.0	100.1		
1,3-Dichloropropene; C <sub>3</sub> H <sub>4</sub> Cl <sub>2</sub> (cis)	542-75-6	112	27.8	111	X	X
Toluene; C <sub>7</sub> H <sub>8</sub>	108-88-3	111	22.0	92	X	X
Trichloroethylene; C <sub>2</sub> HCl <sub>3</sub>	79-01-6	87.0	20.0	131.4	X	X
1,1,2-Trichloroethane; C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	79-00-5	114	19.0	133.4	X	X
Tetrachloroethylene; C <sub>2</sub> Cl <sub>4</sub>	127-18-4	121	14.0	165.8	X	X
Epichlorohydrin (1-chloro-2,3-epoxy propane); C <sub>3</sub> H <sub>5</sub> ClO	106-89-8	117	12.0	92.5		
Ethylene dibromide (1,2-dibromoethane); C <sub>2</sub> H <sub>4</sub> Br <sub>2</sub>	106-93-4	132	11.0	187.9	X	X
N-Nitroso-N-methylurea; C <sub>2</sub> H <sub>5</sub> N <sub>3</sub> O <sub>2</sub>	684-93-5	124	10.0	103		
2-Nitropropane; C <sub>3</sub> H <sub>7</sub> NO <sub>2</sub>	79-46-9	120	10.0	89		
Chlorobenzene; C <sub>6</sub> H <sub>5</sub> Cl	108-90-7	132	8.8	112.6	X	X
Ethylbenzene; C <sub>8</sub> H <sub>10</sub>	100-41-4	136	7.0	106	X	X
Xylenes (isomer & mixtures); C <sub>8</sub> H <sub>10</sub>	1330-20-7	142	6.7	106.2	X	X
Styrene; C <sub>8</sub> H <sub>8</sub>	100-42-5	145	6.6	104	X	X
p-Xylene; C <sub>8</sub> H <sub>10</sub>	106-42-3	138	6.5	106.2	X	X
m-Xylene; C <sub>8</sub> H <sub>10</sub>	108-38-3	139	6.0	106.2	X	X
Methyl isobutyl ketone (hexone); C <sub>6</sub> H <sub>12</sub> O	108-10-1	117	6.0	100.2		
Bromoform (tribromomethane); CHBr <sub>3</sub>	75-25-2	149	5.6	252.8		
1,1,2,2-Tetrachloroethane; C <sub>2</sub> H <sub>2</sub> Cl <sub>4</sub>	79-34-5	146	5.0	167.9	X	X
o-Xylene; C <sub>8</sub> H <sub>10</sub>	95-47-6	144	5.0	106.2	X	X
Dimethylcarbamyl chloride; C <sub>3</sub> H <sub>6</sub> ClNO	79-44-7	166	4.9	107.6		
N-Nitrosodimethylamine; C <sub>2</sub> H <sub>6</sub> N <sub>2</sub> O	62-75-9	152	3.7	74		
Beta-Propiolactone; C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>	57-57-8	Decomposes at 162	3.4	72		
Cumene (isopropylbenzene); C <sub>9</sub> H <sub>12</sub>	98-82-8	153	3.2	120		

TABLE 1. (continued)

Compound	CAS No.	BP (°C)	V.p. (mmHg) <sup>1</sup>	MW <sup>1</sup>	TO-14A	CLP-SOW
Cumene (isopropylbenzene); C <sub>9</sub> H <sub>12</sub>	98-82-8	153	3.2	120		
Acrylic acid; C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>	79-10-7	141	3.2	72		
N,N-Dimethylformamide; C <sub>3</sub> H <sub>7</sub> NO	68-12-2	153	2.7	73		
1,3-Propane sultone; C <sub>3</sub> H <sub>6</sub> O <sub>3</sub> S	1120-71-4	180/30mm	2.0	122.1		
Acetophenone; C <sub>8</sub> H <sub>8</sub> O	98-86-2	202	1.0	120		
Dimethyl sulfate; C <sub>2</sub> H <sub>6</sub> O <sub>4</sub> S	77-78-1	188	1.0	126.1		
Benzyl chloride (a-chlorotoluene); C <sub>7</sub> H <sub>7</sub> Cl	100-44-7	179	1.0	126.6	X	X
1,2-Dibromo-3-chloropropane; C <sub>3</sub> H <sub>5</sub> Br <sub>2</sub> Cl	96-12-8	196	0.80	236.4		
Bis(2-Chloroethyl)ether; C <sub>4</sub> H <sub>8</sub> Cl <sub>2</sub> O	111-44-4	178	0.71	143		
Chloroacetic acid; C <sub>2</sub> H <sub>3</sub> ClO <sub>2</sub>	79-11-8	189	0.69	94.5		
Aniline (aminobenzene); C <sub>6</sub> H <sub>7</sub> N	62-53-3	184	0.67	93		
1,4-Dichlorobenzene (p-); C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	106-46-7	173	0.60	147	X	X
Ethyl carbamate (urethane); C <sub>3</sub> H <sub>7</sub> NO <sub>2</sub>	51-79-6	183	0.54	89		
Acrylamide; C <sub>3</sub> H <sub>5</sub> NO	79-06-1	125/25 mm	0.53	71		
N,N-Dimethylaniline; C <sub>8</sub> H <sub>11</sub> N	121-69-7	192	0.50	121		
Hexachloroethane; C <sub>2</sub> Cl <sub>6</sub>	67-72-1	Sublimes at 186	0.40	236.7		
Hexachlorobutadiene; C <sub>4</sub> Cl <sub>6</sub>	87-68-3	215	0.40	260.8	X	X
Isophorone; C <sub>9</sub> H <sub>14</sub> O	78-59-1	215	0.38	138.2		
N-Nitrosomorpholine; C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O <sub>2</sub>	59-89-2	225	0.32	116.1		
Styrene oxide; C <sub>8</sub> H <sub>8</sub> O	96-09-3	194	0.30	120.2		
Diethyl sulfate; C <sub>4</sub> H <sub>10</sub> O <sub>4</sub> S	64-67-5	208	0.29	154		
Cresylic acid (cresol isomer mixture); C <sub>7</sub> H <sub>8</sub> O	1319-77-3	202	0.26	108		
o-Cresol; C <sub>7</sub> H <sub>8</sub> O	95-48-7	191	0.24	108		
Catechol (o-hydroxyphenol); C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>	120-80-9	240	0.22	110		
Phenol; C <sub>6</sub> H <sub>6</sub> O	108-95-2	182	0.20	94		

TABLE 1. (continued)

Compound	CAS No.	BP (°C)	v.p. (mmHg) <sup>1</sup>	MW <sup>1</sup>	TO-14A	CLP-SOW
Catechol (o-hydroxyphenol); C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>	120-80-9	240	0.22	110		
Phenol; C <sub>6</sub> H <sub>6</sub> O	108-95-2	182	0.20	94		
1,2,4-Trichlorobenzene; C <sub>6</sub> H <sub>3</sub> Cl <sub>3</sub>	120-82-1	213	0.18	181.5	X	X
nitrobenzene; C <sub>6</sub> H <sub>5</sub> NO <sub>2</sub>	98-95-3	211	0.15	123		

<sup>1</sup>Vapor pressure (v.p.), boiling point (BP) and molecularweight (MW) data from:

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(b)R. C. Weber, P. A. Parker, and M. Bowser. Vapor Pressure Distribution of Selected Organic Chemicals, Report EPA-600/2-81-021, U. S. Environmental Protection Agency, Cincinnati, OH, February 1981; and

(c)R. C. Weast, ed., "CRC Handbook of Chemistry and Physics," 59th edition, CRC Press, Boca Raton, 1979.

**TABLE 2. CHARACTERISTIC MASSES (M/Z) USED FOR QUANTIFYING  
THE TITLE III CLEAN AIR ACT AMENDMENT COMPOUNDS**

Compound	CAS No.	Primary Ion	Secondary Ion
Methyl chloride (chloromethane); CH <sub>3</sub> Cl	74-87-3	50	52
Carbonyl sulfide; COS	463-88-1	60	62
Vinyl chloride (chloroethene); C <sub>2</sub> H <sub>3</sub> Cl	75-01-4	62	64
Diazomethane; CH <sub>2</sub> N <sub>2</sub>	334-88-3	42	41
Formaldehyde; CH <sub>2</sub> O	50-00-0	29	30
1,3-Butadiene; C <sub>4</sub> H <sub>6</sub>	106-99-0	39	54
Methyl bromide (bromomethane); CH <sub>3</sub> Br	74-83-9	94	96
Phosgene; CCl <sub>2</sub> O	75-44-5	63	65
Vinyl bromide (bromoethene); C <sub>2</sub> H <sub>3</sub> Br	593-60-2	106	108
Ethylene oxide; C <sub>2</sub> H <sub>4</sub> O	75-21-8	29	44
Ethyl chloride (chloroethane); C <sub>2</sub> H <sub>5</sub> Cl	75-00-3	64	66
Acetaldehyde (ethanal); C <sub>2</sub> H <sub>4</sub> O	75-07-0	44	29, 43
Vinylidene chloride (1,1-dichloroethylene); C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	75-35-4	61	96
Propylene oxide; C <sub>3</sub> H <sub>6</sub> O	75-56-9	58	57
Methyl iodide (iodomethane); CH <sub>3</sub> I	74-88-4	142	127
Methylene chloride; CH <sub>2</sub> Cl <sub>2</sub>	75-09-2	49	84, 86
Methyl isocyanate; C <sub>2</sub> H <sub>3</sub> NO	624-83-9	57	56
Allyl chloride (3-chloropropene); C <sub>3</sub> H <sub>5</sub> Cl	107-05-1	76	41, 78
Carbon disulfide; CS <sub>2</sub>	75-15-0	76	44, 78
Methyl tert-butyl ether; C <sub>5</sub> H <sub>12</sub> O	1634-04-4	73	41, 53
Propionaldehyde; C <sub>2</sub> H <sub>5</sub> CHO	123-38-6	58	29, 57
Ethylidene dichloride (1,1-dichloroethane); C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	75-34-3	63	65, 27
Chloroprene (2-chloro-1,3-butadiene); C <sub>4</sub> H <sub>5</sub> Cl	126-99-8	88	53, 90
Chloromethyl methyl ether; C <sub>2</sub> H <sub>5</sub> ClO	107-30-2	45	29, 49
Acrolein (2-propenal); C <sub>3</sub> H <sub>4</sub> O	107-02-8	56	55
1,2-Epoxybutane (1,2-butylene oxide); C <sub>4</sub> H <sub>8</sub> O	106-88-7	42	41, 72
Chloroform; CHCl <sub>3</sub>	67-66-3	83	85, 47
Ethyleneimine (aziridine); C <sub>2</sub> H <sub>5</sub> N	151-56-4	42	43
1,1-Dimethylhydrazine; C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>	57-14-7	60	45, 59
Hexane; C <sub>6</sub> H <sub>14</sub>	110-54-3	57	41, 43
1,2-Propyleneimine (2-methylaziridine); C <sub>3</sub> H <sub>7</sub> N	75-55-8	56	57, 42
Acrylonitrile (2-propenenitrile); C <sub>3</sub> H <sub>3</sub> N	107-13-1	53	52
Methyl chloroform (1,1,1 trichloroethane); C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	71-55-6	97	99, 61
Methanol; CH <sub>4</sub> O	67-56-1	31	29
Carbon tetrachloride; CCl <sub>4</sub>	56-23-5	117	119
Vinyl acetate; C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	108-05-4	43	86
Methyl ethyl ketone (2-butanone); C <sub>4</sub> H <sub>8</sub> O	78-93-3	43	72

TABLE 2. (continued)

Compound	CAS No.	Primary Ion	Secondary Ion
Benzene; C <sub>6</sub> H <sub>6</sub>	71-43-2	78	77, 50
Acetonitrile (cyanomethane); C <sub>2</sub> H <sub>3</sub> N	75-05-8	41	40
Ethylene dichloride (1,2-dichloroethane); C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	107-06-2	62	64, 27
Triethylamine; C <sub>6</sub> H <sub>15</sub> N	121-44-8	86	58, 101
Methylhydrazine; CH <sub>6</sub> N <sub>2</sub>	60-34-4	46	31, 45
Propylene dichloride (1,2-dichloropropane); C <sub>3</sub> H <sub>6</sub> Cl <sub>2</sub>	78-87-5	63	41, 62
2,2,4-Trimethyl pentane; C <sub>8</sub> H <sub>18</sub>	540-84-1	57	41, 56
1,4-Dioxane (1,4 Diethylene oxide); C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	123-91-1	88	58
Bis(chloromethyl) ether; C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub> O	542-88-1	79	49, 81
Ethyl acrylate; C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	140-88-5	55	73
Methyl methacrylate; C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	80-62-6	41	69, 100
1,3-Dichloropropene; C <sub>3</sub> H <sub>4</sub> Cl <sub>2</sub> (cis)	542-75-6	75	39, 77
Toluene; C <sub>7</sub> H <sub>8</sub>	108-88-3	91	92
Trichloethylene; C <sub>2</sub> HCl <sub>3</sub>	79-01-6	130	132, 95
1,1,2-Trichloroethane; C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	79-00-5	97	83, 61
Tetrachloroethylene; C <sub>2</sub> Cl <sub>4</sub>	127-18-4	166	164, 131
Epichlorohydrin (1-chloro-2,3-epoxy propane); C <sub>3</sub> H <sub>5</sub> ClO	106-89-8	57	49, 62
Ethylene dibromide (1,2-dibromoethane); C <sub>2</sub> H <sub>4</sub> Br <sub>2</sub>	106-93-4	107	109
N-Nitroso-N-methylurea; C <sub>2</sub> H <sub>5</sub> N <sub>3</sub> O <sub>2</sub>	684-93-5	60	44, 103
2-Nitropropane; C <sub>3</sub> H <sub>7</sub> NO <sub>2</sub>	79-46-9	43	41
Chlorobenzene; C <sub>6</sub> H <sub>5</sub> Cl	108-90-7	112	77, 114
Ethylbenzene; C <sub>8</sub> H <sub>10</sub>	100-41-4	91	106
Xylenes (isomer & mixtures); C <sub>8</sub> H <sub>10</sub>	1330-20-7	91	106
Styrene; C <sub>8</sub> H <sub>8</sub>	100-42-5	104	78, 103
p-Xylene; C <sub>8</sub> H <sub>10</sub>	106-42-3	91	106
m-Xylene; C <sub>8</sub> H <sub>10</sub>	108-38-3	91	106
Methyl isobutyl ketone (hexone); C <sub>6</sub> H <sub>12</sub> O	108-10-1	43	58, 100
Bromoform (tribromomethane); CHBr <sub>3</sub>	75-25-2	173	171, 175
1,1,2,2-Tetrachloroethane; C <sub>2</sub> H <sub>2</sub> Cl <sub>4</sub>	79-34-5	83	85
o-Xylene; C <sub>8</sub> H <sub>10</sub>	95-47-6	91	106
Dimethylcarbamy chloride; C <sub>3</sub> H <sub>6</sub> ClNO	79-44-7	72	107
N-Nitrosodimethylamine; C <sub>2</sub> H <sub>6</sub> N <sub>2</sub> O	62-75-9	74	42
Beta-Propiolactone; C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>	57-57-8	42	43
Cumene (isopropylbenzene); C <sub>9</sub> H <sub>12</sub>	98-82-8	105	120
Acrylic acid; C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>	79-10-7	72	45, 55
N,N-Dimethylformamide; C <sub>3</sub> H <sub>7</sub> NO	68-12-2	73	42, 44
1,3-Propane sultone; C <sub>3</sub> H <sub>6</sub> O <sub>3</sub> S	1120-71-4	58	65, 122

TABLE 2. (continued)

Compound	CAS No.	Primary Ion	Secondary Ion
Acetophenone; C <sub>8</sub> H <sub>8</sub> O	98-86-2	105	77, 120
Dimethyl sulfate; C <sub>2</sub> H <sub>6</sub> O <sub>4</sub> S	77-78-1	95	66, 96
Benzyl chloride (a-chlorotoluene); C <sub>7</sub> H <sub>7</sub> Cl	100-44-7	91	126
1,2-Dibromo-3-chloropropane; C <sub>3</sub> H <sub>5</sub> Br <sub>2</sub> Cl	96-12-8	57	155, 157
Bis(2-Chloroethyl)ether; C <sub>4</sub> H <sub>8</sub> Cl <sub>2</sub> O	111-44-4	93	63, 95
Chloroacetic acid; C <sub>2</sub> H <sub>3</sub> ClO <sub>2</sub>	79-11-8	50	45, 60
Aniline (aminobenzene); C <sub>6</sub> H <sub>7</sub> N	62-53-3	93	66
1,4-Dichlorobenzene (p-); C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	106-46-7	146	148, 111
Ethyl carbamate (urethane); C <sub>3</sub> H <sub>7</sub> NO <sub>2</sub>	51-79-6	31	44, 62
Acrylamide; C <sub>3</sub> H <sub>5</sub> NO	79-06-1	44	55, 71
N,N-Dimethylaniline; C <sub>8</sub> H <sub>11</sub> N	121-69-7	120	77, 121
Hexachloroethane; C <sub>2</sub> Cl <sub>6</sub>	67-72-1	201	199, 203
Hexachlorobutadiene; C <sub>4</sub> Cl <sub>6</sub>	87-68-3	225	227, 223
Isophorone; C <sub>9</sub> H <sub>14</sub> O	78-59-1	82	138
N-Nitrosomorpholine; C <sub>4</sub> H <sub>8</sub> N <sub>2</sub> O <sub>2</sub>	59-89-2	56	86, 116
Styrene oxide; C <sub>8</sub> H <sub>8</sub> O	96-09-3	91	120
Diethyl sulfate; C <sub>4</sub> H <sub>10</sub> O <sub>4</sub> S	64-67-5	45	59, 139
Cresylic acid (cresol isomer mixture); C <sub>7</sub> H <sub>8</sub> O	1319-77-3		
o-Cresol; C <sub>7</sub> H <sub>8</sub> O	95-48-7	108	107
Catechol (o-hydroxyphenol); C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>	120-80-9	110	64
Phenol; C <sub>6</sub> H <sub>6</sub> O	108-95-2	94	66
1,2,4-Trichlorobenzene; C <sub>6</sub> H <sub>3</sub> Cl <sub>3</sub>	120-82-1	180	182, 184
Nitrobenzene; C <sub>6</sub> H <sub>5</sub> NO <sub>2</sub>	98-95-3	77	51, 123

**TABLE 3. REQUIRED BFB KEY IONS AND  
ION ABUNDANCE CRITERIA**

Mass	Ion Abundance Criteria <sup>1</sup>
50	8.0 to 40.0 Percent of m/e 95
75	30.0 to 66.0 Percent of m/e 95
95	Base Peak, 100 Percent Relative Abundance
96	5.0 to 9.0 Percent of m/e 95 (See note)
173	Less than 2.0 Percent of m/e 174
174	50.0 to 120.0 Percent of m/e 95
175	4.0 to 9.0 Percent of m/e 174
176	93.0 to 101.0 Percent of m/e 174
177	5.0 to 9.0 Percent of m/e 176

<sup>1</sup>All ion abundances must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120 percent that of m/z 95.

**TABLE 4. METHOD DETECTION LIMITS (MDL)<sup>1</sup>**

TO-14A List	Lab #1, SCAN	Lab #2, SIM
Benzene	0.34	0.29
Benzyl Chloride	--	--
Carbon tetrachloride	0.42	0.15
Chlorobenzene	0.34	0.02
Chloroform	0.25	0.07
1,3-Dichlorobenzene	0.36	0.07
1,2-Dibromoethane	--	0.05
1,4-Dichlorobenzene	0.70	0.12
1,2-Dichlorobenzene	0.44	--
1,1-Dichloroethane	0.27	0.05
1,2-Dichloroethane	0.24	--
1,1-Dichloroethene	--	0.22
cis-1,2-Dichloroethene	--	0.06
Methylene chloride	1.38	0.84
1,2-Dichloropropane	0.21	--
cis-1,3-Dichloropropene	0.36	--
trans-1,3-Dichloropropene	0.22	--
Ethylbenzene	0.27	0.05
Chloroethane	0.19	--
Trichlorofluoromethane	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--
1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	--
Dichlorodifluoromethane	--	--
Hexachlorobutadiene	--	--
Bromomethane	0.53	--
Chloromethane	0.40	--
Styrene	1.64	0.06
1,1,2,2-Tetrachloroethane	0.28	0.09
Tetrachloroethene	0.75	0.10
Toluene	0.99	0.20
1,2,4-Trichlorobenzene	--	--
1,1,1-Trichloroethane	0.62	0.21
1,1,2-Trichloroethane	0.50	--
Trichloroethene	0.45	0.07
1,2,4-Trimethylbenzene	--	--
1,3,5-Trimethylbenzene	--	--
Vinyl Chloride	0.33	0.48
m,p-Xylene	0.76	0.08
o-Xylene	0.57	0.28

<sup>1</sup>Method Detection Limits (MDLs) are defined as the product of the standard deviation of seven replicate analyses and the student's "t" test value for 99% confidence. For Lab #2, the MDLs represent an average over four studies. MDLs are for MS/SCAN for Lab #1 and for MS/SIM for Lab #2.

**TABLE 5. SUMMARY OF EPA DATA ON REPLICATE PRECISION (RP)  
FROM EPA NETWORK OPERATIONS<sup>1</sup>**

Monitoring Compound Identification	EPA's Urban Air Toxics Monitoring Program (UATMP)			EPA's Toxics Air Monitoring Stations (TAMS)		
	%RP	#	ppbv	%RP	#	ppbv
Dichlorodifluoromethane	--		--	13.9	47	0.9
Methylene chloride	16.3	07	4.3	19.4	47	0.6
1,2-Dichloroethane	36.2	31	1.6	--	--	--
1,1,1-Trichloroethane	14.1	44	1.0	10.6	47	2.0
Benzene	12.3	56	1.6	4.4	47	1.5
Trichloroethene	12.8	08	1.3	--	--	--
Toluene	14.7	76	3.1	3.4	47	3.1
Tetrachloroethene	36.2	12	0.8	--	--	--
Chlorobenzene	20.3	21	0.9	--	--	--
Ethylbenzene	14.6	32	0.7	5.4	47	0.5
m-Xylene	14.7	75	4.0	5.3	47	1.5
Styrene	22.8	59 <sup>2</sup>	1.1	8.7	47	0.2 <sup>2</sup>
o-Xylene	--		--	6.0	47	0.5
p-Xylene	--					
1,3-Dichlorobenzene	49.1	06	0.6	--	--	--
1,4-Dichlorobenzene	14.7	14	6.5	--	--	--

<sup>1</sup>Denotes the number of replicate or duplicate analysis used to generate the statistic. The replicate precision is defined as the mean ratio of absolute difference to the average value.

<sup>2</sup>Styrene and o-xylene coelute from the GC column used in UATMP. For the TAMS entries, both values were below detection limits for 18 of 47 replicates and were not included in the calculation.

**TABLE 6. AUDIT ACCURACY (AA) VALUES<sup>1</sup> FOR SELECTED  
COMPENDIUM METHOD TO-14A COMPOUNDS**

Selected Compounds From TO-14A List	FY-88 TAMS AA(%), N=30	FY-88 UATMP AA(%), N=3
Vinyl chloride	4.6	17.9
Bromomethane	--	6.4
Trichlorofluoromethane	6.4	--
Methylene chloride	8.6	31.4
Chloroform	--	4.2
1,2-Dichloroethane	6.8	11.4
1,1,1-Trichloroethane	18.6	11.3
Benzene	10.3	10.1
Carbon tetrachloride	12.4	9.4
1,2-Dichloropropane	--	6.2
Trichloroethene	8.8	5.2
Toluene	8.3	12.5
Tetrachloroethene	6.2	--
Chlorobenzene	10.5	11.7
Ethylbenzene	12.4	12.4
o-Xylene	16.2	21.2

<sup>1</sup>Audit accuracy is defined as the relative difference between the audit measurement result and its nominal value divided by the nominal value. N denotes the number of audits averaged to obtain the audit accuracy value. Information is not available for other TO-14A compounds because they were not present in the audit materials.

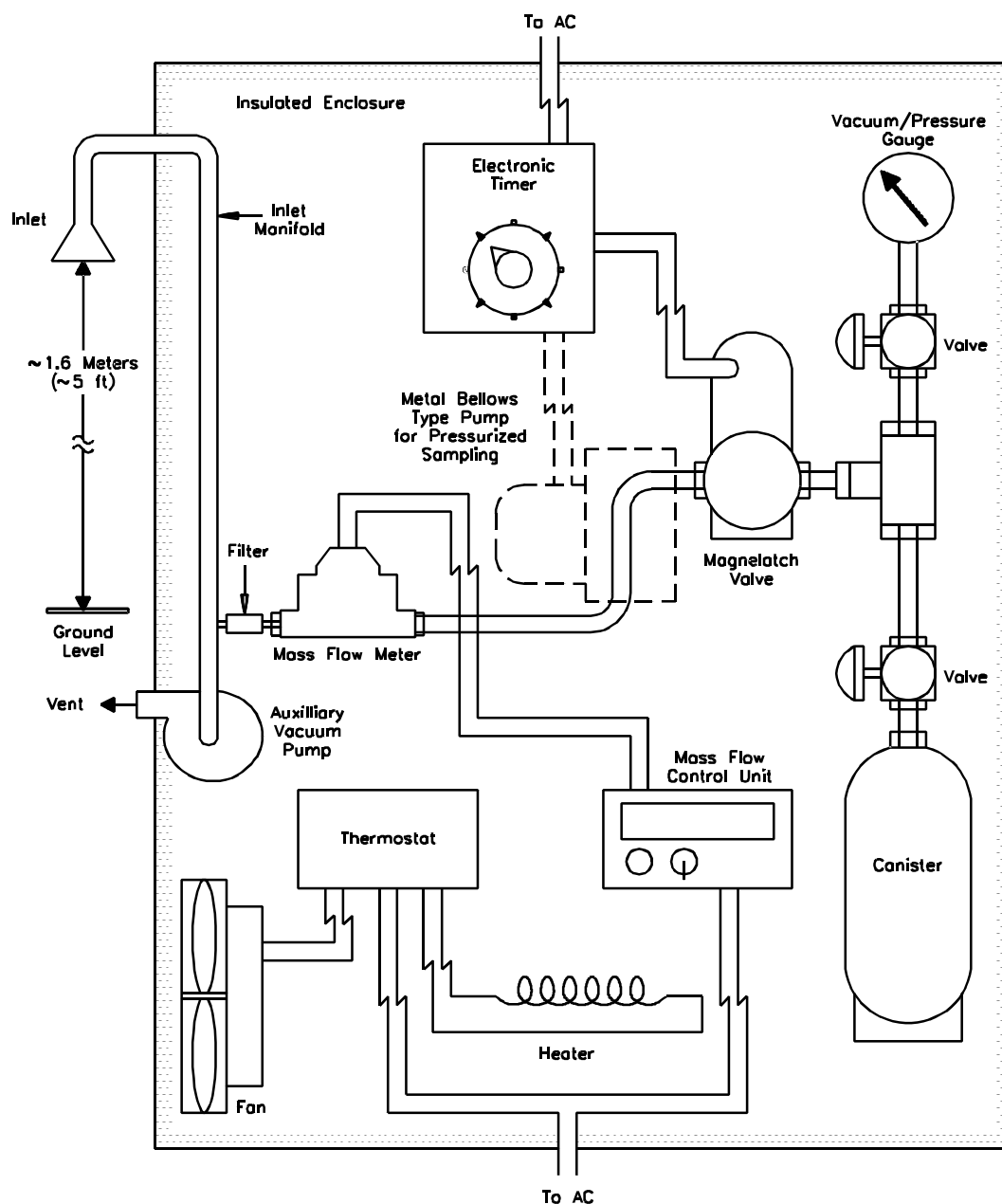
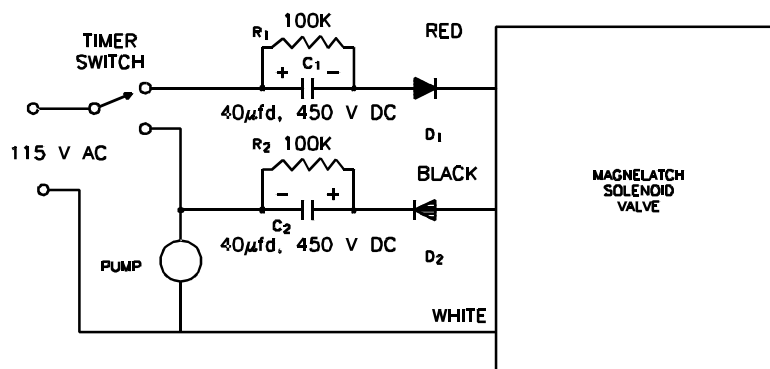
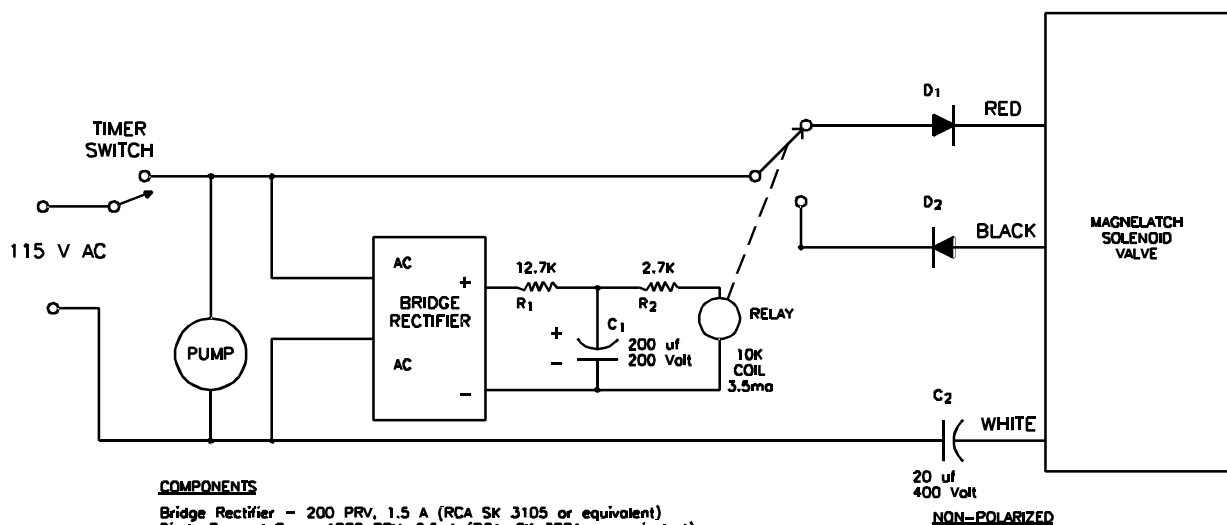


Figure 1. Sampler configuration for subatmospheric pressure or pressurized canister sampling.

**COMPONENTS**

Capacitor C<sub>1</sub> and C<sub>2</sub> – 40 µf, 450 VDC (Sprague Atom TVA 1712 or equivalent)  
 Resistor R<sub>1</sub> and R<sub>2</sub> – 0.5 watt, 5% tolerance  
 Diode D<sub>1</sub> and D<sub>2</sub> – 1000 PRV, 2.5 A (RCA, SK 3061 or equivalent)

(a). Simple Circuit for Operating Magnelatch Valve

**COMPONENTS**

Bridge Rectifier – 200 PRV, 1.5 A (RCA SK 3105 or equivalent)  
 Diode D<sub>1</sub> and D<sub>2</sub> – 1000 PRV, 2.5 A (RCA, SK 3061 or equivalent)  
 Capacitor C<sub>1</sub> – 200 µf, 250 VDC (Sprague Atom TVA 1528 or equivalent)  
 Capacitor C<sub>2</sub> – 20 µf, 400 VDC Non-Polarized (Sprague Atom TVAN 1652 or equivalent)  
 Relay – 10,000 ohm coil, 3.5 ma (AMF Potter and Brumfield, KCP 5, or equivalent)  
 Resistor R<sub>1</sub> and R<sub>2</sub> – 0.5 watt, 5% tolerance

(b). Improved Circuit Designed to Handle Power Interruptions

Figure 2. Electrical pulse circuits for driving Skinner magnelatch solenoid valve with mechanical timer.

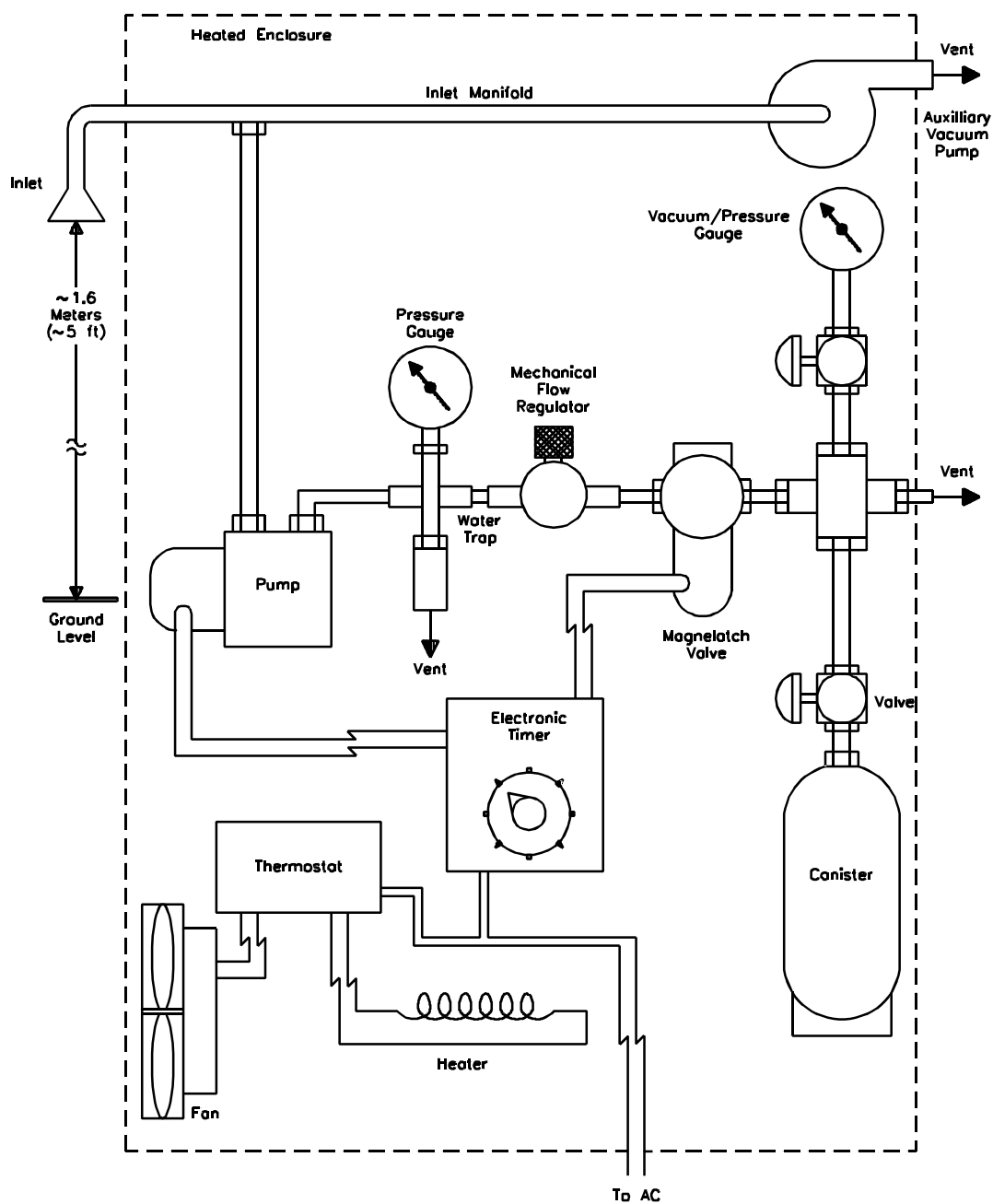


Figure 3. Alternative sampler configuration for pressurized canister sampling.

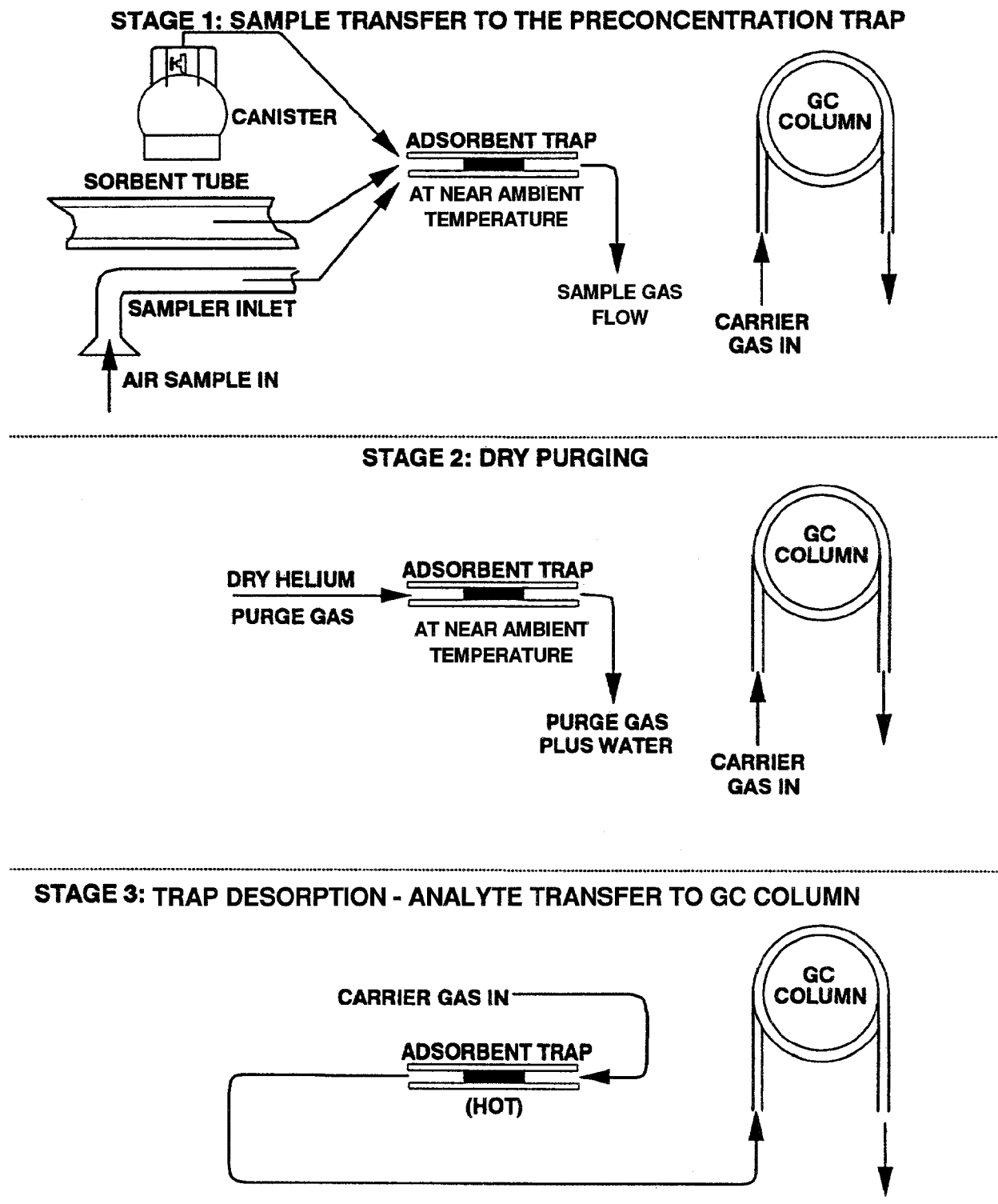


Figure 4. Illustration of three stages of dry purging of adsorbent trap.

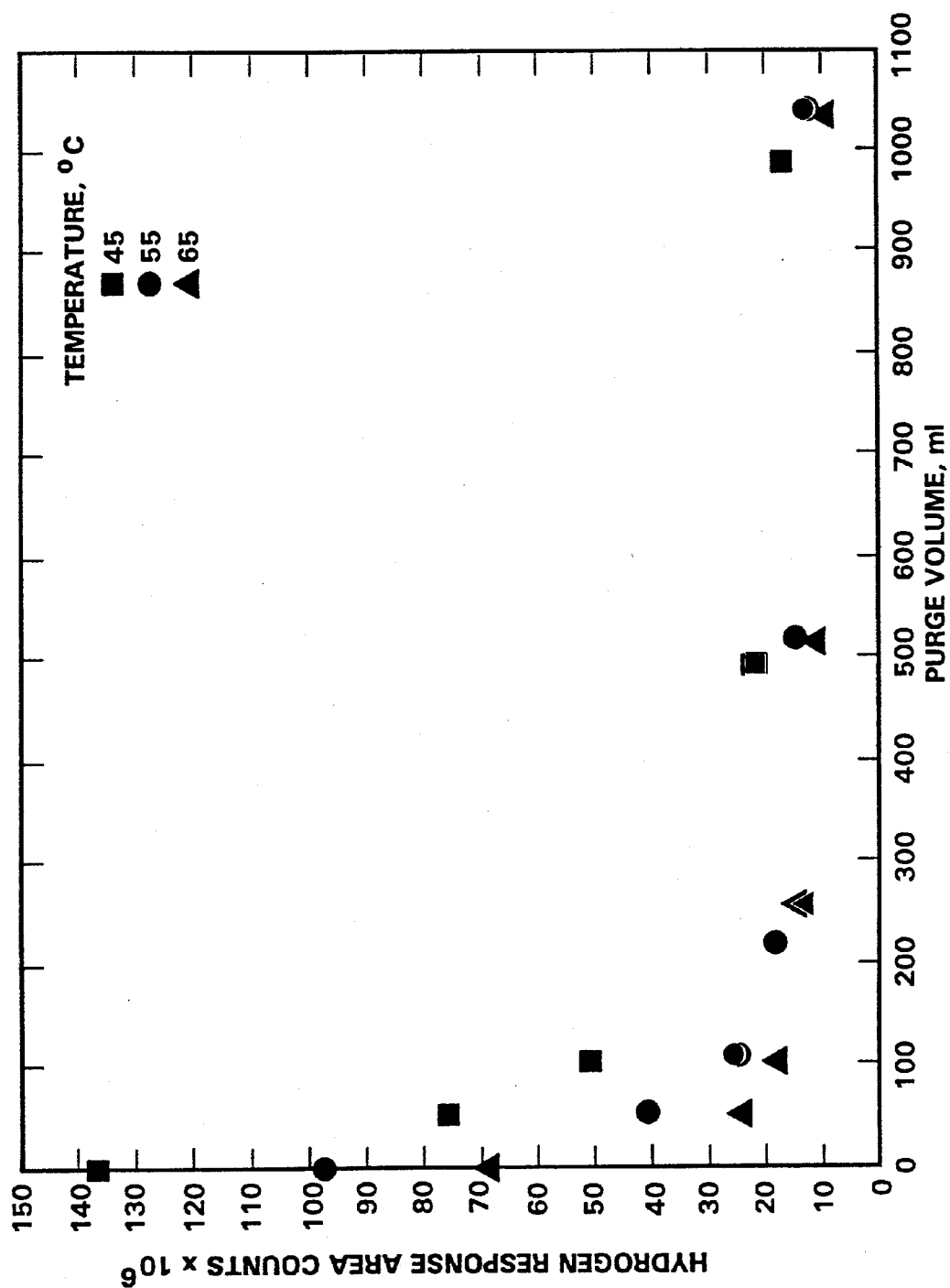


Figure 5. Residual water vapor on VOC concentrator vs. dry He purge volume.

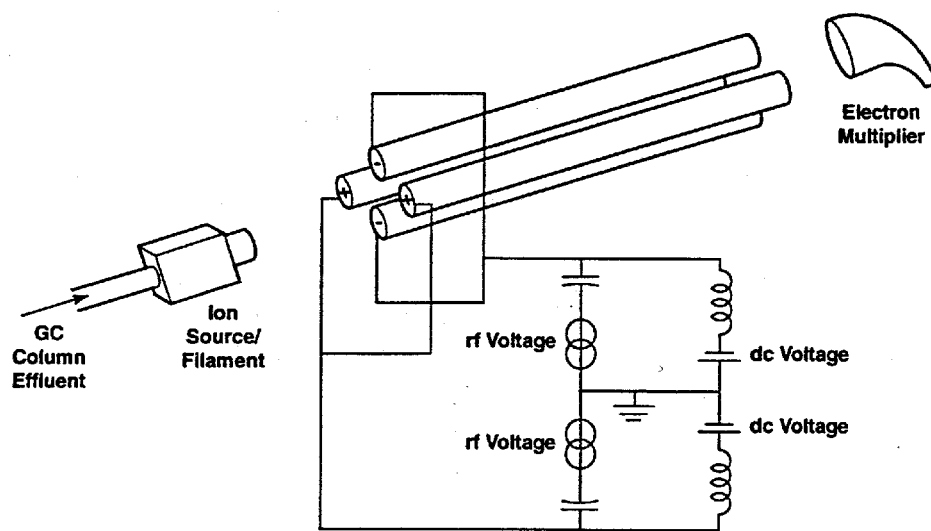


Figure 6. Simplified diagram of a quadrupole mass spectrometer.

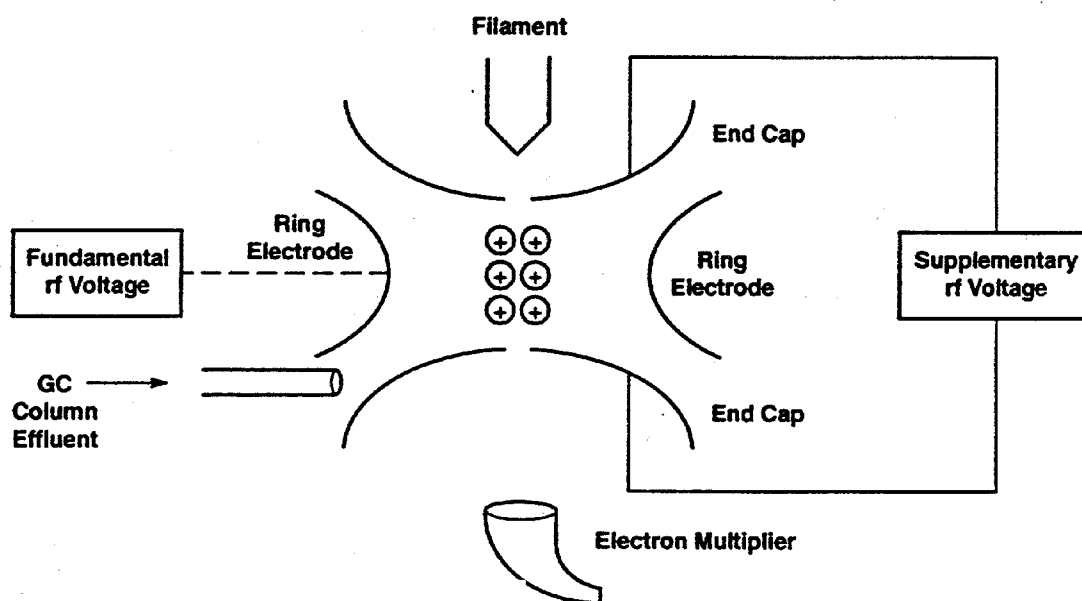


Figure 7. Simplified diagram of an ion trap mass spectrometer.

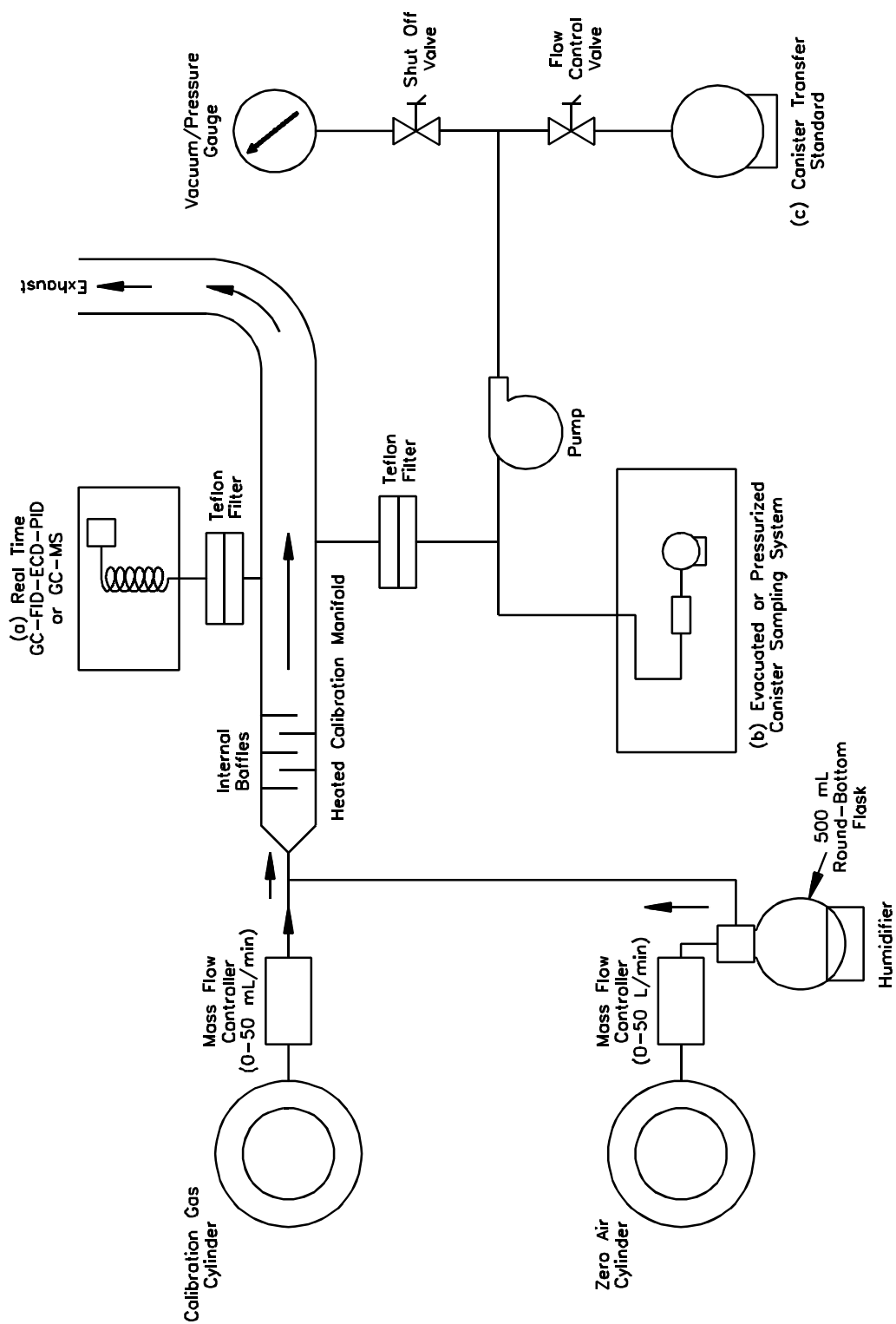


Figure 8. Schematic diagram of calibration system and manifold for (a) analytical system calibration, (b) testing canister sampling system and (c) preparing canister transfer standards.

**COMPENDIUM METHOD TO-15  
CANISTER SAMPLING FIELD TEST DATA SHEET**

**A. GENERAL INFORMATION**

SITE LOCATION: \_\_\_\_\_

SITE ADDRESS: \_\_\_\_\_

SAMPLING DATE: \_\_\_\_\_

SHIPPING DATE: \_\_\_\_\_

CANISTER SERIAL NO.: \_\_\_\_\_

SAMPLER ID: \_\_\_\_\_

OPERATOR: \_\_\_\_\_

CANISTER LEAK \_\_\_\_\_

CHECK DATE: \_\_\_\_\_

**B. SAMPLING INFORMATION**

TEMPERATURE					PRESSURE	
	INTERIOR	AMBIENT	MAXIMUM	MINIMUM	CANISTER PRESSURE	
START						
STOP						

SAMPLING TIMES		FLOW RATES			
	LOCAL TIME	ELAPSED TIME METER READING	MANIFOLD FLOW RATE	CANISTER FLOW RATE	FLOW CONTROLLER READOUT
START					
STOP					

SAMPLING SYSTEM CERTIFICATION DATE: \_\_\_\_\_

QUARTERLY RECERTIFICATION DATE: \_\_\_\_\_

**C. LABORATORY INFORMATION**

DATA RECEIVED: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

INITIAL PRESSURE: \_\_\_\_\_

FINAL PRESSURE: \_\_\_\_\_

DILUTION FACTOR: \_\_\_\_\_

**ANALYSIS**

GC-FID-ECD DATE: \_\_\_\_\_

GC-MSD-SCAN DATE: \_\_\_\_\_

GC-MSD-SIM DATE: \_\_\_\_\_

RESULTS\*: \_\_\_\_\_

GC-FID-ECD: \_\_\_\_\_

GC-MSD-SCAN: \_\_\_\_\_

GC-MSD-SIM: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE/TITLE

Figure 9. Canister sampling field test data sheet (FTDS).

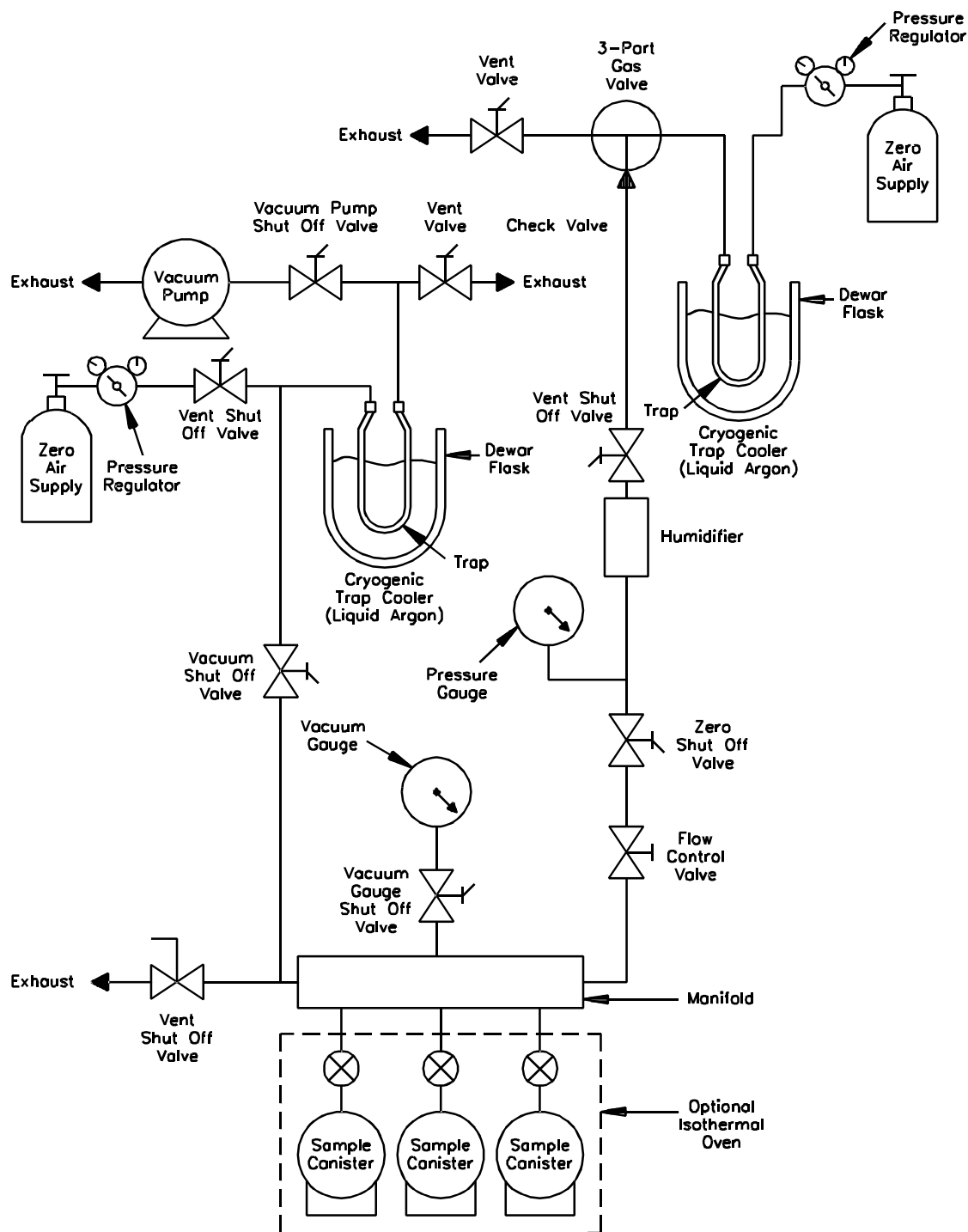


Figure 10. Canister cleaning system.

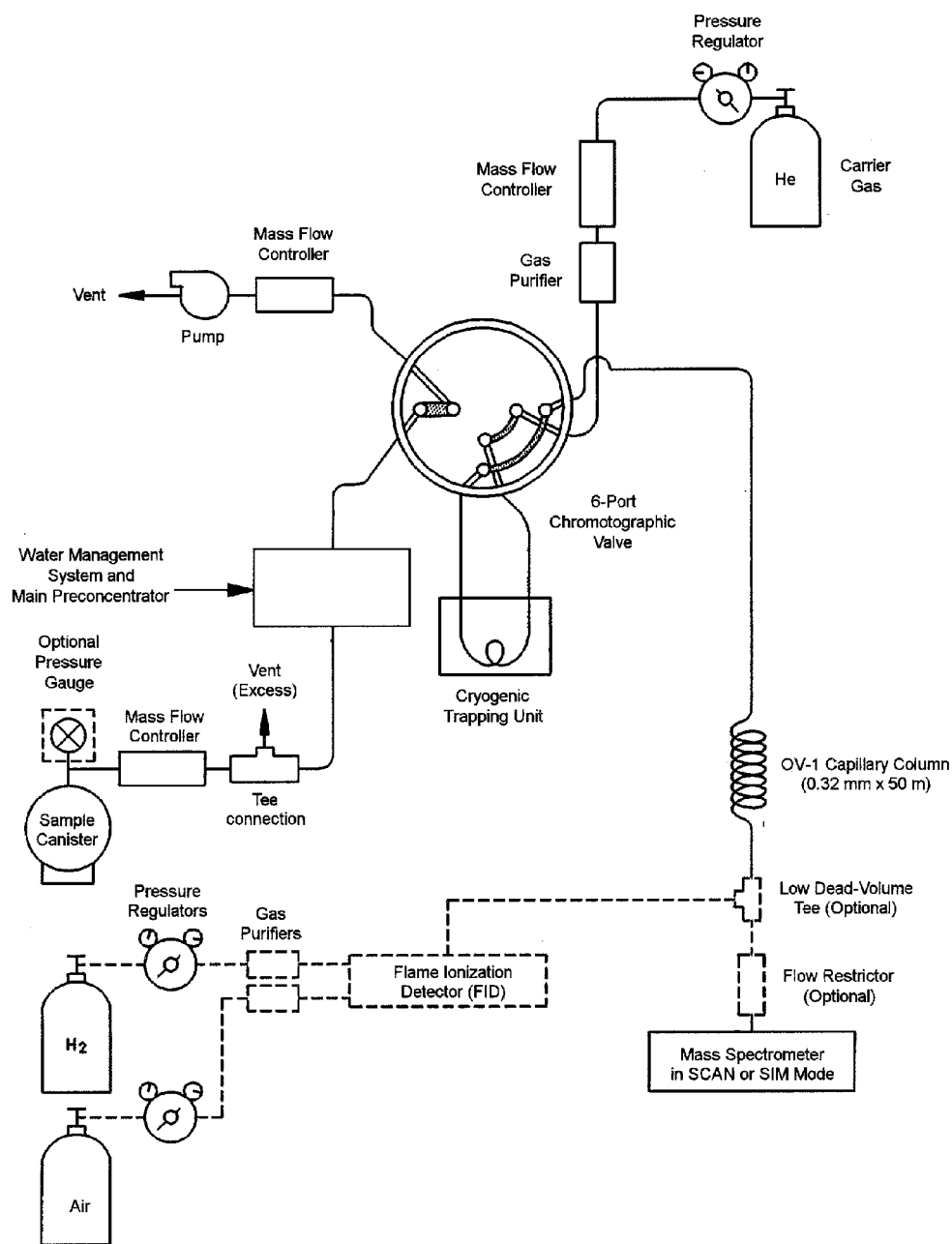
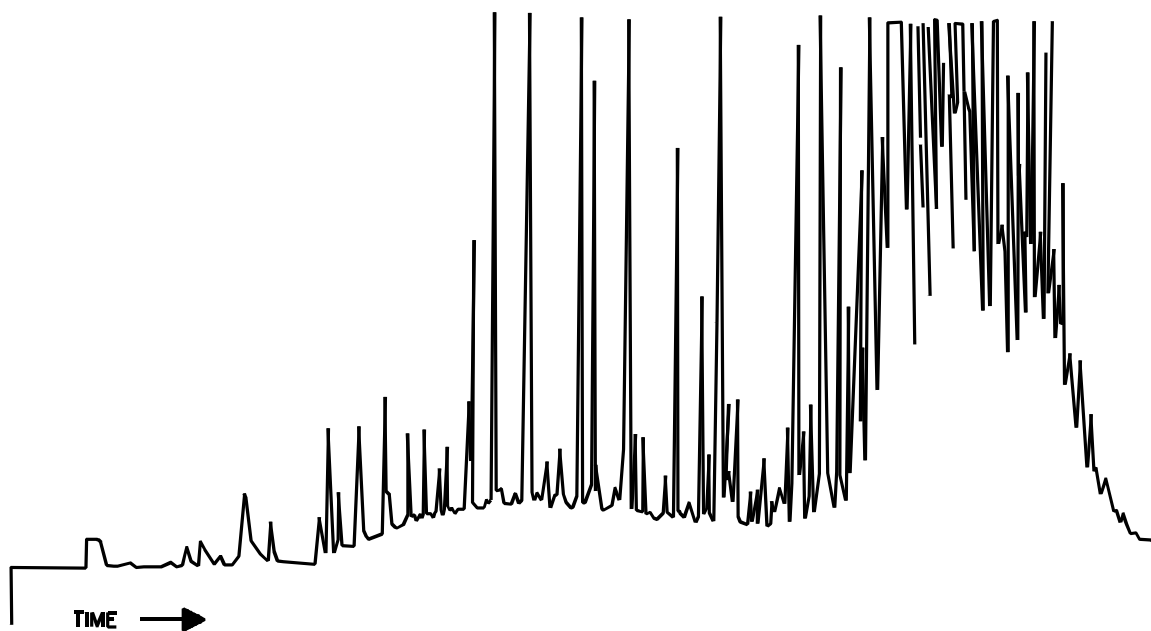


Figure 11. Canister analysis utilizing GC/MS/SCAN/SIM analytical system with optional flame ionization detector with 6-port chromatographic valve in the sample desorption mode.  
[Alternative analytical system illustrated in Figure 16.]



(a). Certified Sampler



(b). Contaminated Sampler

Figure 12. Example of humid zero air test results for a clean sample canister (a) and a contaminated sample canister (b).

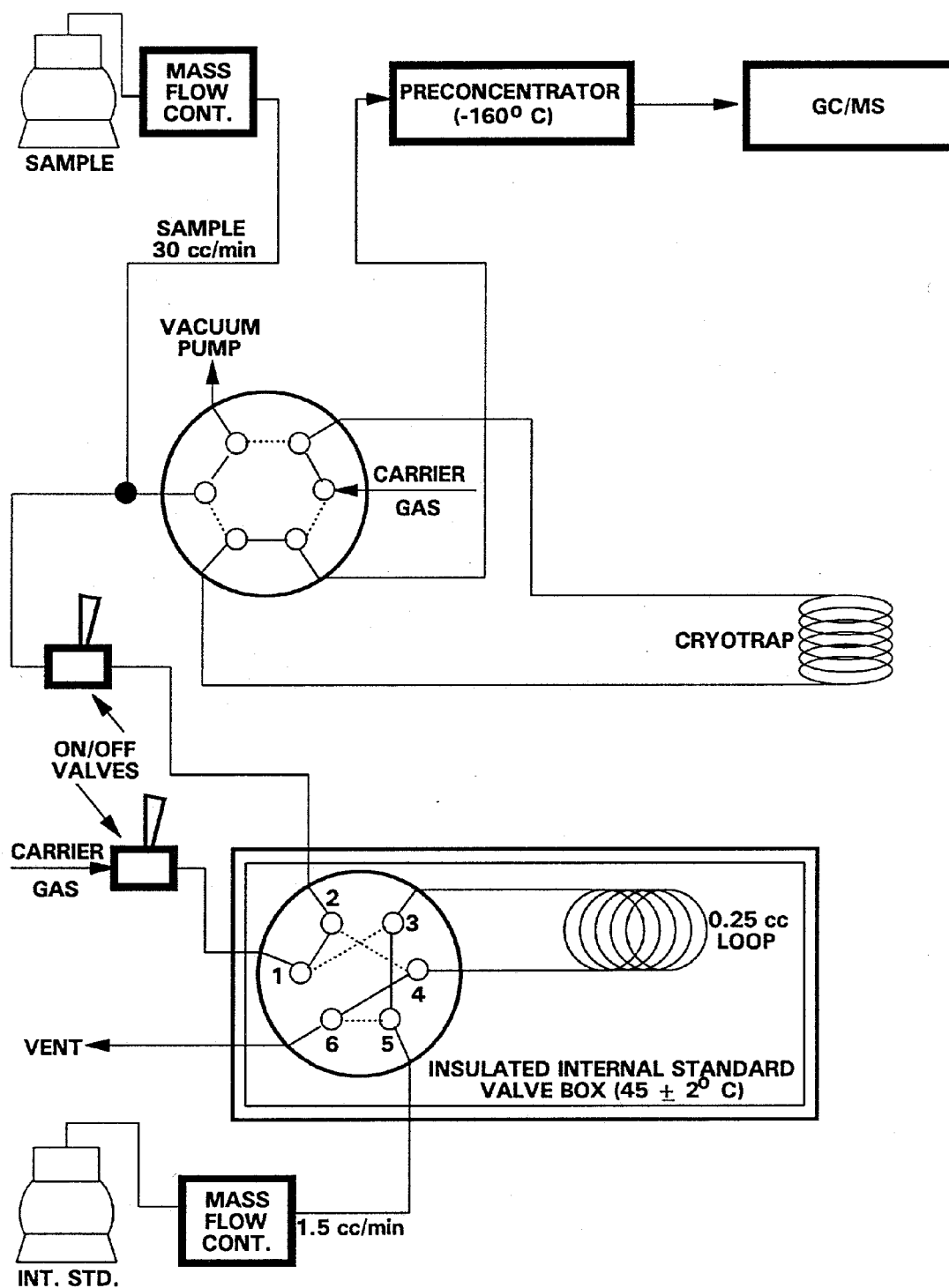


Figure 13. Diagram of design for internal standard addition.

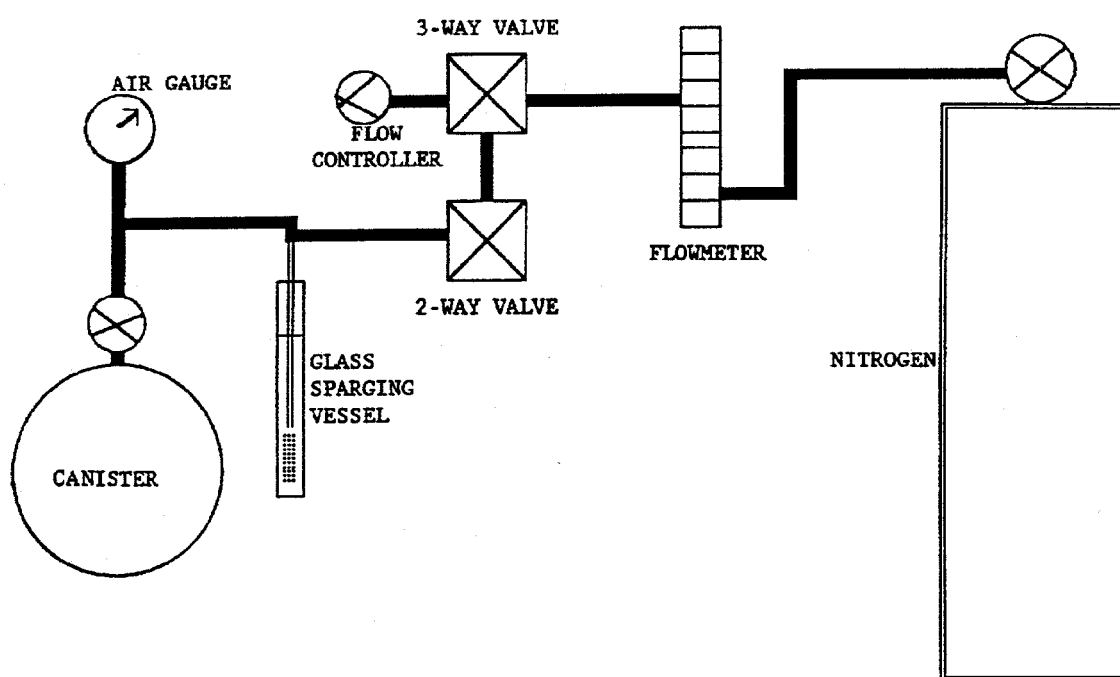


Figure 14. Water method of standard preparation in canisters.

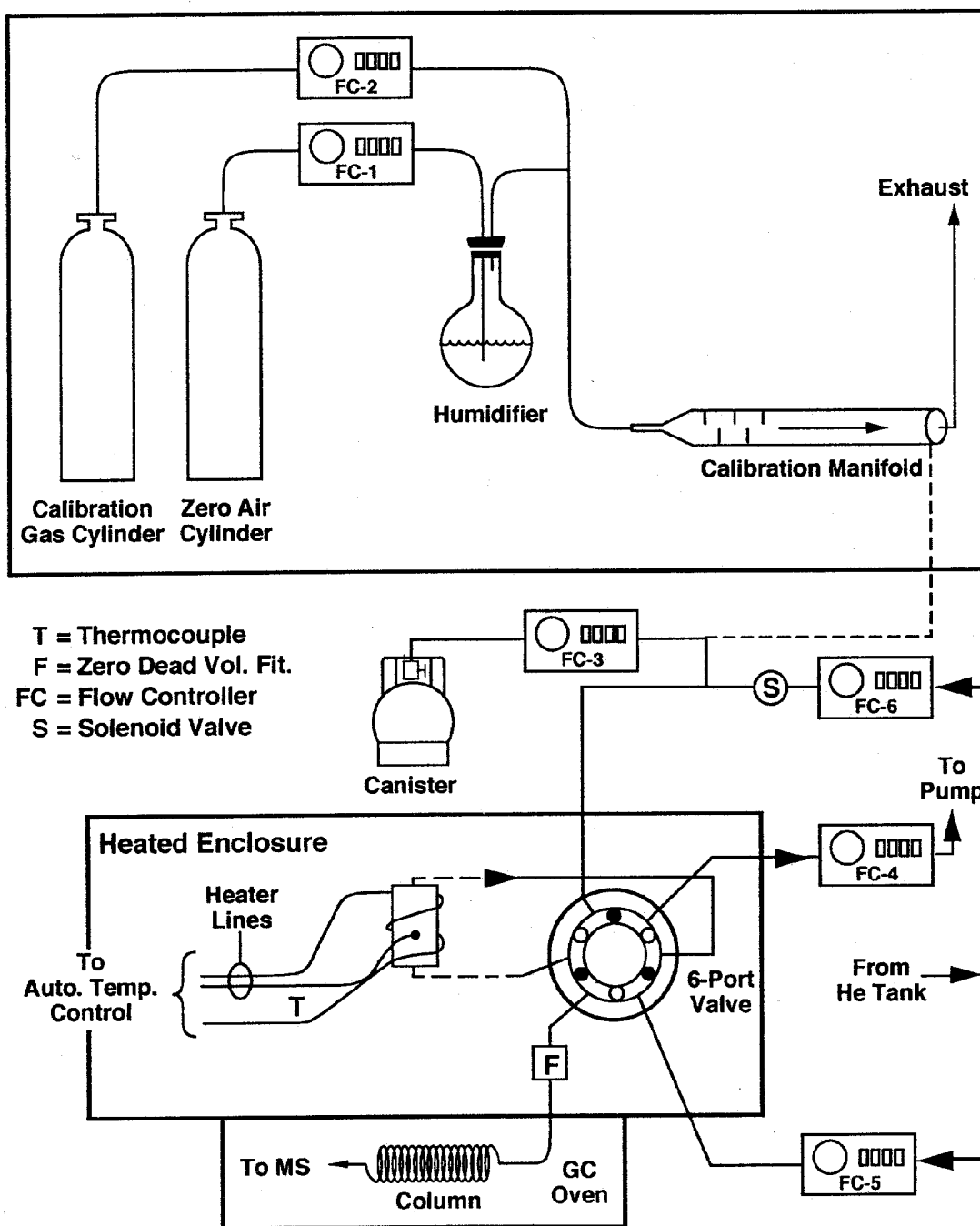


Figure 15. Diagram of the GC/MS analytical system.

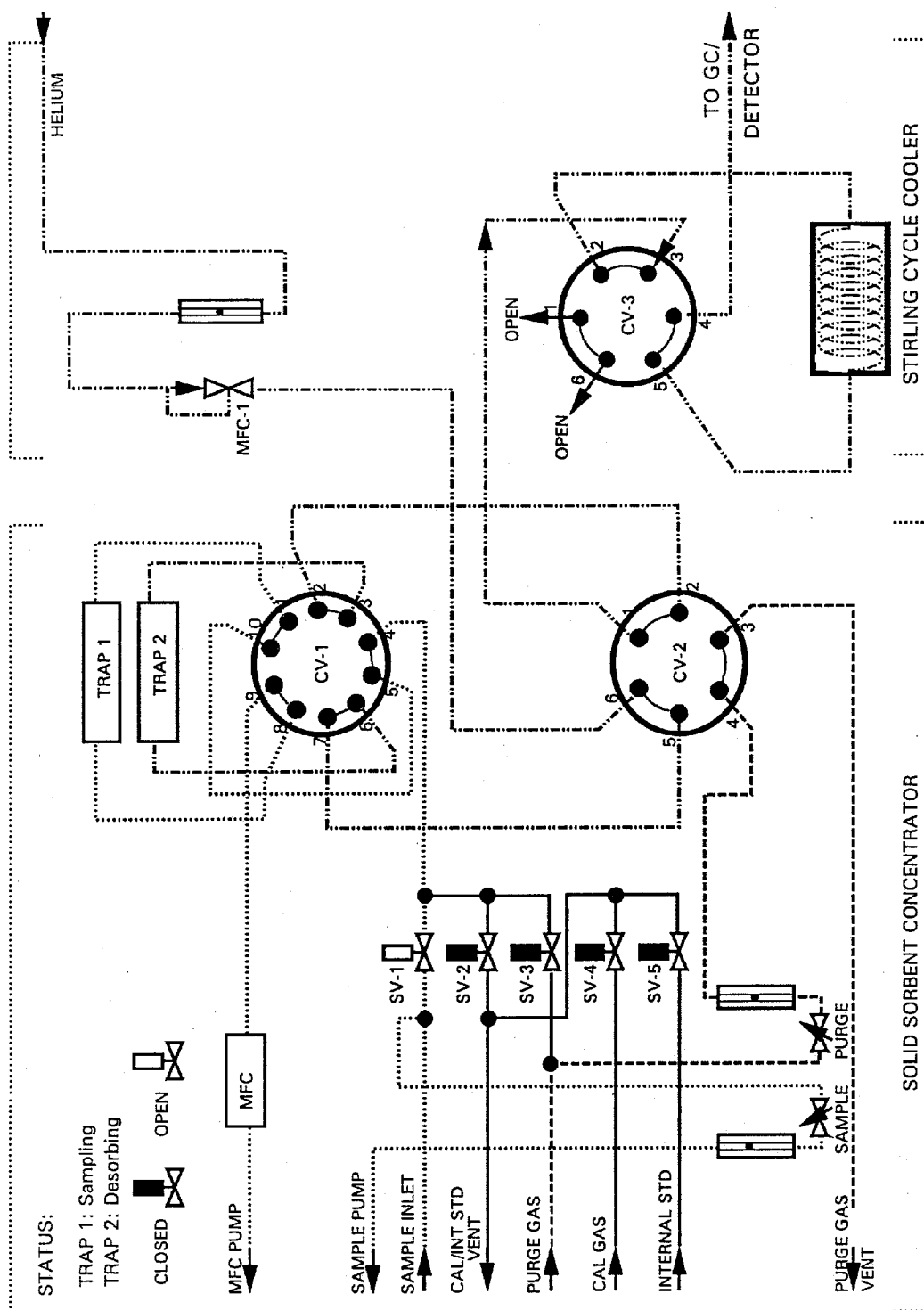


Figure 16. Sample flow diagram of a commercially available concentrator showing the combination of multisorbent tube and cooler (Trap 1 sampling; Trap 2 desorbing).





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## VOLATILE ORGANIC COMPOUNDS IN AIR

Method No.:	PV2120
Control No.:	T-PV2120-01-0305-ACT
Matrix:	Air
Procedure:	A sample is collected by drawing air through an orifice into an evacuated fused silica-lined stainless steel canister. The canisters are analyzed in the laboratory, where they are first pressurized with nitrogen. Aliquots of the air sample are withdrawn, cryofocused, and analyzed by gas chromatography/mass spectrometry to determine the concentrations of compounds collected.
Recommended sampling volume and sampling time:	The canister volume is approximately 400 mL. Short-term sampling orifices allow the canister to be filled in less than one minute. Long-term area samples or personal air samples may be collected over periods up to 8 hours or longer.
Detection Limits:	Detection and reliable quantitation limits will vary with analyte response factor. Detection limits of low ppb levels are possible for most common analytes.
Status of method:	Partially Validated. This method has been subjected to the established evaluation procedures of the SLTC Methods Development Team.
Date:	May, 2003
Chemist:	Patrick Hearty

Applied IH Chemistry Team  
Program Support Division  
OSHA Salt Lake Technical Center  
Salt Lake City, Utah 84115-1802

### 1. General Discussion

#### 1.1 Background and History

Evacuated stainless steel canisters with electro-polished inner surfaces, called SUMMA canisters, are widely used in EPA applications when sampling for volatile organic compounds (VOC's) in the environment (1). Canisters have been evaluated for use with a range of volatile organics, including aliphatic and aromatic hydrocarbons, and chlorinated compounds (2). This technique has also been applied to a variety of practical applications, such as indoor air quality problems (3), and other situations involving low levels of volatile contaminants, including the docking of the Russian Priroda module with Space Station Mir (4). The evacuated canisters offer a number of advantages, including elimination of the need for a sampling pump, avoidance of questions concerning sorbent tube collection and recovery, and the ability to make replicate injections and dilutions during analysis.

The development of a process which coats stainless steel with fused silica has led to important advances in chemical sampling and analysis. This material offers the structural strength and impermeability of steel combined with the inertness of fused silica. Entech, Inc., Simi Valley, CA, has combined the fused silica coating with the polished canister technology in a smaller MiniCan, 400-mL capacity, for use as a personal sampler in industrial hygiene. This new technique is leading to improved analytical methods for a variety of reactive and labile compounds of interest at very low levels (5, 6).

Short-term area samples are collected by attaching a sampling orifice to the inlet of the MiniCan. Sampling begins immediately, and is completed when the pressure inside the canister is equal to the atmospheric pressure on the outside, or when the sampling orifice is detached from the canister. For personal air samples, a MiniCan is mounted in a holster attached to a belt fastened around the waist of the worker. A sampling orifice with regulator is attached to the inlet of the canister, and a length of inert tubing leading from the breathing zone of the worker is connected to the inlet of the orifice. In the laboratory, the canister is pressurized with nitrogen, and the contents are analyzed by gas chromatography/mass spectrometry.

The data presented in this method were produced during an evaluation study conducted at OSHA's Salt Lake Technical Center (7).

## 1.2 Limit Defining Parameters.

### 1.2.1 Detection Limits

Standards of *n*-hexane (5.3 ppb), tetrachloroethylene (5.2 ppb), toluene (5.3 ppb), and *p*-xylene (5.3 ppb) were analyzed for determination of detection limits. Lower limits of detection are estimated to be: 0.2 ppb for *n*-hexane, 0.4 ppb for tetrachloroethylene, 1 ppb for toluene, and 4 ppb for *p*-xylene. (Section 4.1)

### 1.2.2 Minimum Injection Volume

Using canisters spiked with standards of 50 ppb of the four analytes listed above, injection volumes from 5 mL to 200 mL were analyzed. Results indicate that a 10 mL injection is the smallest volume which provides acceptable precision. (Section 4.2)

### 1.2.3 Storage Stability

Canisters spiked with each of the four test compounds at 25 ppb were stored at room temperature for up to 14 days. The average of four replicates was as follows: *n*-hexane 125%; toluene 97.4%; tetrachloroethylene 89.7%; *p*-xylene 100%. (Section 4.3)

To test recovery at higher levels, a single test was run by spiking one canister with trichloroethane at 100 ppm. The measured value after 5 days was 102%.

The draft NIOSH method for canister sampling of VOC's indicates 30-day sample stability for most compounds (8). Some compounds have been reported stable for up to 4 months (2).

### 1.2.4 Precision

Five canister replicates were spiked with the four test analytes each at a level of 50 ppb. The coefficients of variation for the four analytes were as follows: *n*-hexane 13.4%; toluene 6.7%; tetrachloroethylene 7.3%; *p*-xylene 6.8%. Data were taken from Table 4.2. Statistical analyses may be found in Tables 4.4.1 through 4.4.4.

## 1.3 Advantages

1.3.1 Problems with collection efficiency and analyte recovery, which may be encountered with sorbents or filters, are avoided. Evacuated canister sampling is a whole-air sampling technique.

1.3.2 When collecting short-term samples, no sampling error is associated with this method.

1.3.3 Sampling pumps are not needed.

## 2. Sampling Procedure

### 2.1 Apparatus

2.1.1 Entech Minicans, 400-mL volume (Entech P/N 29-MC400), were used in this study. Sampling canisters may be obtained from a contract laboratory, and returned to the contract lab after samples are collected. Canisters obtained from the contract lab will be certified clean (9).



Figure 2.1.1  
Four 400 mL Minicans.

2.1.2 Samples are collected by filling evacuated canisters through a sampling orifice. Orifices are available which provide practically instant grab sampling (Entech P/N 39-QFS). Pressure regulated orifices (Entech P/N CS1200E) offer sampling times as short as 2 minutes, or as long as 8 hours or more. These sapphire orifices are said to provide superior flow stability, compared to needle valve or frit-regulated controllers.



Figure 2.1.2.1  
Short-term sampling orifice.



Figure 2.1.2.2  
Minican with pressure regulated orifice.

2.1.3 For personal sampling, a holster and belt (Entech P/N 39-35000) can be used to attach the canister to the waist of an employee. An inert inlet line (Entech P/N 39-36010) is used to draw air from the employee's breathing zone.



Figure 2.1.3  
Minican with pressure regulated orifice and personal sampling belt and inlet line.

2.1.4 End caps are removed from the canisters prior to attachment of the sampling regulators, and replaced when sampling is complete.

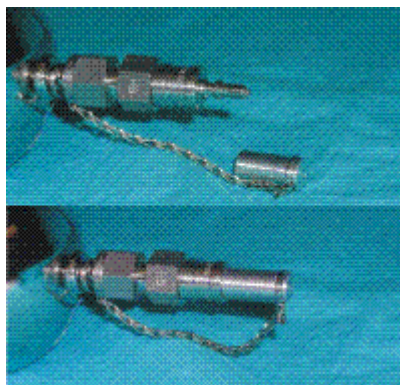


Figure 2.1.4  
Minican inlet with end cap removed and in place.

## 2.2 Reagents

None needed.

## 2.3 Sampling Technique

2.3.1 Choose the time-release regulator, either short- or long-term, appropriate for the desired application.

2.3.2 Holding the sampling regulator in one hand, slide back the knurled collar with thumb and index finger.

2.3.3 Hold the canister in the other hand, with protective end cap removed, and with tip of canister facing sampling regulator.

2.3.4 Insert the canister tip into the regulator, and release the knurled collar. No gap should be observable between the regulator and the fitting at the end of the canister.

2.3.5 Sampling begins immediately. (Note the time of day.)

2.3.6 Bear in mind that this is a whole air sampling technique. Lack of selectivity is inherent in this method. If for example, the person performing the sampling, or the person being sampled should be wearing perfume or cologne, volatile components of these will also be sampled.

2.3.7 When sampling is complete, reverse above steps to disengage the canister from the regulator. Slide back the knurled collar with thumb and index finger, and separate the canister from the regulator. Release the knurled collar.

2.3.8 Replace the protective end cap onto the canister, and seal each canister with an OSHA Form 21.

2.3.9 Record sampling time. (Note the time of day when sampling is completed.)

2.3.10 No sample blank is necessary if the canisters were assured to be clean at the outset of sampling. A sample collected in a control area may be included if desired.

## 2.4 Safety Precautions (sampling)

2.4.1 Follow all safety procedures which apply in the work area being sampled.

2.4.2 If personal sampling is being conducted, attach sampling equipment to the employees in such a manner that it will not interfere with work performance or safety.

## 3. Analytical Procedure

It is possible to conduct sampling using this method even if your laboratory is not equipped with apparatus for cleaning and analysis of canister samples. Contract laboratories will provide loan of cleaned and evacuated canisters followed by GC/MS analysis of your samples (9).

### 3.1 Apparatus

3.1.1 Entech Canister System consisting of a Model 7032L 21-Position Loop Autosampler and Model 7100 Preconcentrator, connected to a GC/mass spectrometer system. A Hewlett-Packard 5973 GC/mass spectrometer was used in this evaluation.

3.1.2 Entech Model 4600 Dynamic Dilution System.

3.1.3 Entech Model 3100 Canister Cleaning System.

3.1.4 Summa Canisters 6-liter volume, Silonite coated.

3.1.5 A GC column capable of providing adequate separation of the analytes of interest must be chosen. A 30-m DB-1-MS column, 0.32-mm i.d. with df 0.25 microns (J&W Scientific, catalog #1230132) was used in this study.

### 3.2 Reagents

3.2.1 Standard gas mixture according to the compounds to be analyzed.

3.2.2 Liquid nitrogen.

3.2.3 Helium (ultra high purity).

### 3.3 Canister Cleaning

3.3.1 The Entech Model 3100 is used to clean canisters prior to sampling. Canisters are evacuated to 13 kPa (2 psi), then filled with clean, humidified nitrogen to 172 kPa (25 psi), while heated to 80°C.

3.3.2 This process is repeated until no residual contaminants remain. Canisters are pressurized to 207 kPa (30 psi) with nitrogen, and an aliquot is withdrawn for analysis (Section 3.6) to ascertain cleanliness.

3.3.3 Canisters which are to be used to sample relatively high (ppm) concentrations of analytes are usually adequately cleaned after 3 cleaning cycles. If a canister which has previously been used for sampling of ppm-level contaminants is to be used to sample low (ppb) concentrations of analytes, more rigorous cleaning will be required. Up to 100 cleaning cycles may be necessary. An effective and more efficient approach, however, is to put the contaminated canisters through 3 cleaning cycles, allow the canisters to sit for a couple of

days, then repeat cleaning through three cycles, and check for cleanliness. Repeat this clean, store, and clean sequence as many times as necessary.

3.3.4 Canisters should be evacuated to a pressure of 6.7 Pa or less prior to sampling. It is recommended that cleaning and evacuation be conducted as near to the time of use as practical.

3.3.5 Canisters may be checked for leaks by pressurizing with clean nitrogen to 207 kPa, rechecking pressure after 24 hours. A pressure drop greater than 14 kPa indicates a leak.

### 3.4 Standard Preparation

3.4.1 Using nitrogen as the diluent gas, standards of the desired analytes plus internal standards are prepared in 6-liter Summa canisters using the Entech Model 4600 Dynamic Dilution System.

3.4.2 If electropolished Summa canisters are used, be sure to use humidified nitrogen as diluent gas, especially if polar compounds are being analyzed. When using fused silica-coated canisters, the requirement for humidity is not critical, since contaminant molecules have lower affinity for the silica-coated surface than for bare stainless steel surfaces.

### 3.5 Sample Preparation

Prior to analysis, the pressure in each sample canister is increased to twice its original value, using zero-grade nitrogen as the diluent gas. After equilibration, this elevated pressure allows measured aliquots of the sample gas to be easily withdrawn for analysis.

### 3.6 Analysis

3.6.1 For samples expected to contain relatively high levels of contaminants (e.g., ppm levels), the Entech Model 7032L Loop Autosampler is used to withdraw approximately 1-mL aliquots of the sample air, diluted with nitrogen. This aliquot is cryofocused prior to introduction on to the GC/MS column.

3.6.2 For samples expected to contain levels of contaminants less than 1 ppm, the Entech Model 7032L Loop Autosampler, is used to withdraw 10- to 100-mL aliquots of the sample air, diluted with nitrogen. These aliquots are drawn into a sampling loop, then concentrated and cryofocused prior to introduction on to the GC/MS column.

3.6.3 Replicate analyses or subsequent aliquots of a different size may be drawn from a sample canister.

#### 3.6.4 Mass spec conditions

GC Column:	DB-1-MS, 30m x 0.320mm i.d.
Initial temperature:	35°C, hold for 5 minutes
Program rate:	10°C/minute
Final temperature:	280°C

zone temperatures:	GC injector: 250°C
	Transfer line: 280°C
	Source: 230°C
	Analyzer: 150°C

Electron energy:	70 eV
Scan range:	24-250 AMU

## 4. Back-up Data

#### 4.1 Detection Limits

Figure 4.1 shows chromatograms of 20-mL and 10-mL injections of a standard of approximately 5 ppb each of the four test compounds. Based on a 100-mL injected sample volume and a two-fold dilution, the estimated limits of detection are: *n*-hexane 0.2 ppb; tetrachloroethylene 0.4 ppb; toluene 1 ppb; and *p*-xylene 4 ppb. Detection limits were calculated based on peak heights which are three times the baseline noise.

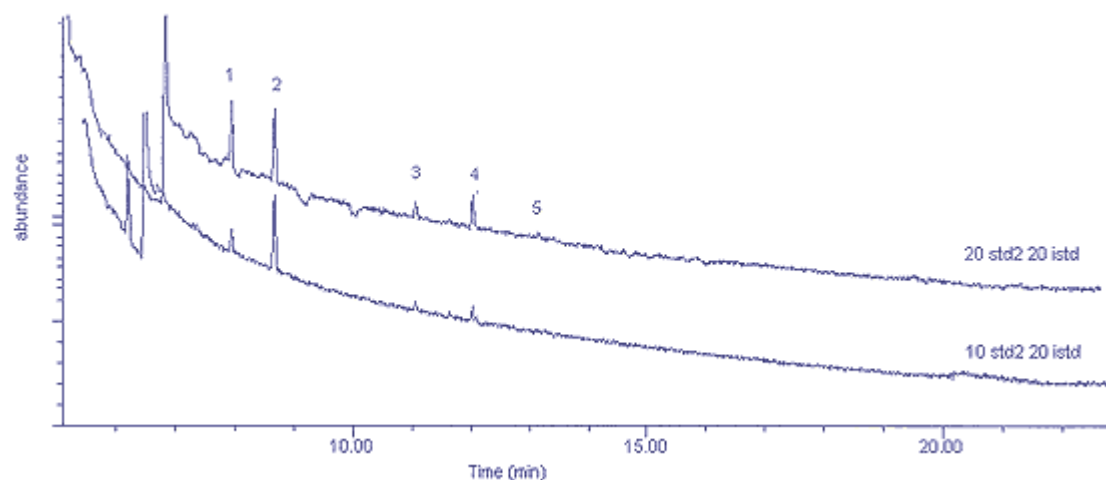


Figure 4.1 Chromatograms of 20-mL and 10-mL volumes of standard 2 (5 ppb). 1 = *n*-hexane (5.3 ppb), 2 = internal standard (1,1,1-trichloroethane), 3 = toluene (5.3 ppb), 4 = tetrachloroethylene (5.2 ppb), 5 = *p*-xylene (5.3 ppb)

#### 4.2 Minimum Injection Volume

Table 4.2 shows the results of injections of a standard of approximately 50 ppb of each of the four test compounds, with injection volumes varying from 5 to 200 mL. Due to lack of acceptable reproducibility of the results from injections of 5 mL, it was concluded that 10 mL is the minimum injection volume which produces reliable results.

Table 4.2 Instrument response of 50-ppb standard (area counts)

mL	hexane	toluene	tetrachloro-ethene	xylene	ISTD
5	135213	77835	244387	48399	1174510
5	299161	191667	426274	121338	1111884
10	4459700	4534540	6104070	4245197	1318405
10	3690372	3667848	5004722	3339190	1112885
20	12708131	14293658	18675442	13303503	789727
20	12661318	13970257	18132314	12841465	1073221
50	31717802	45084647	64610183	41904604	2195409
50	30678491	43439246	63863835	40392582	1716193
50	30201947	43346349	63159344	40179816	1569277
50	29278081	40377803	58893541	37513228	1636387
50	39971450	38043062	54059640	35324003	834744
100	61064562	126363870	244037259	122562739	2049239
100	56598966	111798212	213612977	109534835	2245114
150	161232524	221738723	451565957	267346044	1743758
150	160587701	213603130	438511070	249931430	1948079
200	109569656	300828355	618466534	346332656	2497457
200	211332078	310746877	617009392	322998984	2033987

### 4.3 Storage Stability

For storage stability studies, canisters were spiked with standards at approximately 25 ppb of each compound and stored at ambient temperatures. Two canisters were spiked with hexane and toluene, and two with tetrachloroethylene and xylene. Aliquots were analyzed on day 0, and subsequently on days 3, 9, and 14. Table 4.3.1 shows the results, in percentages of theoretical amounts, for hexane and toluene. Similar data for tetrachloroethylene and xylene are shown in Table 4.3.2. These results are represented graphically for hexane in Figure 4.3.1.1, for toluene in Figure 4.3.1.2, for tetrachloroethylene in Figure 4.3.2.1, and for xylene in Figure 4.3.2.2.

Table 4.3.1. Storage data for *n*-hexane and toluene at 25 ppb

time (days)	n-hexane recovery (%)				toluene recovery (%)			
0	98.4	102.1	101.6	98.0	99.7	104.3	100.4	95.5
3	98.5	99.5	-	-	99.8	101.3	-	-
9	109.6	112.6	98.7	97.8	101.1	102.4	100.9	102.7
14	119.8	115.3	134.3	131.2	95.3	91.3	102.7	100.3

Table 4.3.2. Storage data for tetrachloroethene and *p*-xylene at 25 ppb

time (days)	tetrachloroethene recovery (%)				p-xylene recovery (%)			
0	98.9	104.9	100.8	95.4	98.9	105.1	100.4	95.6
3	101.8	105.3	-	-	100.4	103.2	-	-
9	81.9	80.0	87.3	94.0	96.3	99.4	102.7	102.4
14	93.4	87.5	89.9	88.1	96.5	93.1	106.1	104.2

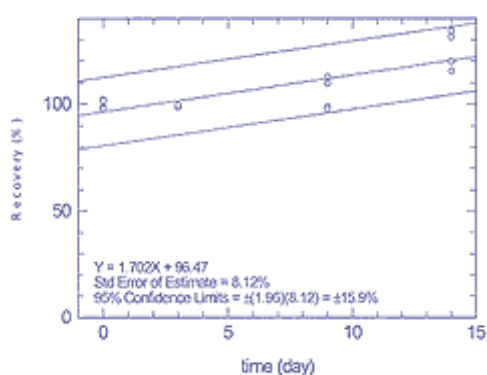


Figure 4.3.1.1  
Storage test for 25 ppb of *n*-hexane

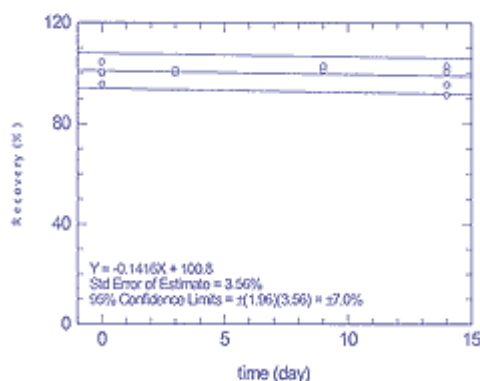


Figure 4.3.1.2  
Storage test for 25 ppb of toluene

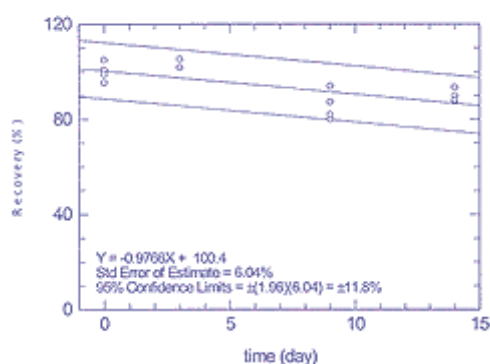


Figure 4.3.2.1

Storage test for 25 ppb of tetrachloroethane

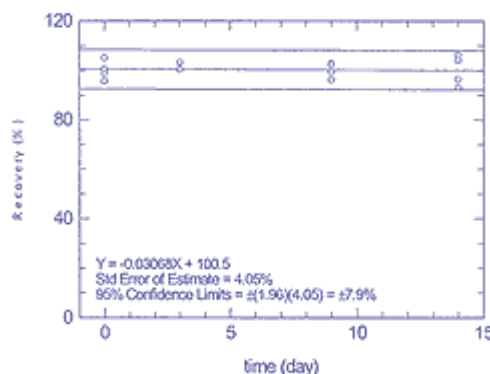


Figure 4.3.2.2

Storage test for 25 ppb of *p*-xylene

A single canister was spiked with 100 ppm trichloroethane. This was analyzed immediately, and after storage up to 13 days. Results are tabulated in Table 4.3.3, and shown graphically in Figure 4.3.3.

Table 4.3.3 Storage test for 1,1,1-trichloroethane at 100 ppm

time (days)	recovery (%)	
0	102.0	98.0
3	100.4	93.3
5	107.2	96.1
7	96.8	90.0
12	91.4	80.3
13	91.3	80.3
17	98.3	120.7

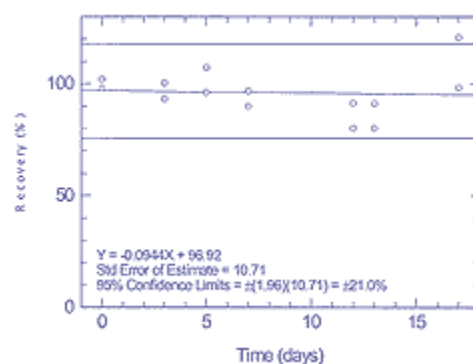


Figure 4.3.3

Storage test for 100 ppm of 1,1,1-trichloroethane.

#### 4.4 Precision

The data in Section 4.4 were extracted from Table 4.2, and show the results of five replicate analyses of a canister spiked with 50 ppb of each of the 4 test compounds. Table 4.4.1 shows results for *n*-hexane along with statistical analysis. Table 4.4.2 shows similar results for toluene, Table 4.4.3 for tetrachloroethylene, and Table 4.4.4 for *o*-xylene.

Table 4.4.1  
Precision data for *n*-hexane, 50-mL  
injection, 50 ppb

Area Counts X 10 <sup>-7</sup>	
3.1718	
3.0627	mean = 3.2370
3.0202	SD = 0.4339
2.9278	CV = 13.40 %
3.9971	

Table 4.4.2  
Precision data for toluene, 50-mL injection,  
50 ppb

Area Counts X 10 <sup>-7</sup>	
4.5085	
4.3439	mean = 4.2058
4.3346	SD = 0.2814
4.0378	CV = 6.69 %
3.8043	

Table 4.4.3  
Precision data for tetrachloroethylene, 50-  
mL injection, 50 ppb

Area Counts X 10 <sup>-7</sup>	
6.4610	
6.3864	mean = 6.0917
6.3159	SD = 0.4429
5.8894	CV = 7.27 %
5.4060	

Table 4.4.4  
Precision data for xylene, 50-mL injection,  
50 ppb

Area Counts X 10 <sup>-7</sup>	
4.1905	
4.0393	mean = 3.9603
4.0180	SD = 0.2690
3.7513	CV = 6.79 %
3.5324	

#### 4.5 Canister cleaning.

4.5.1 Figure 4.5.1 shows a chromatogram after 3 cleaning cycles of a canister which had

contained 33 ppm trichloroethane. A 1-mL aliquot was sampled by loop injection without pre-concentration. The canister is adequately clean for sampling and analysis at the ppm level.

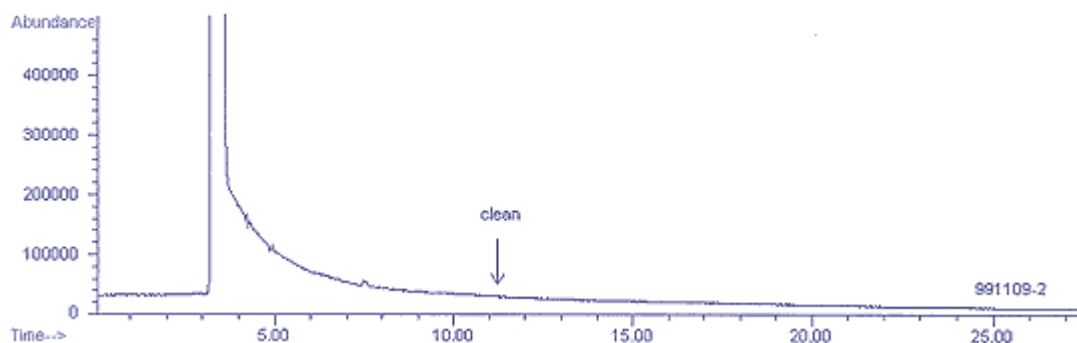


Figure 4.5.1 Total ion chromatogram of a MiniCan that had contained 33 ppm of 1,1,1-trichloroethane and then was cleaned 3 cycles. Analysis by loop injection. Arrow shows the retention time of 1,1,1-trichloroethane.

4.5.2 Figure 4.5.2 shows a chromatogram after 100 cleaning cycles of a canister which had contained 100 ppm of trichloroethane. A 100-mL aliquot was sampled for pre-concentration prior to injection. The canister is adequately clean for sampling and analysis at the ppb level. It is recommended that highly contaminated canisters be cleaned for 3 cycles, allowed to sit for several days, then cleaned for 3 more cycles and tested for cleanliness. Repeat this sequence until acceptable cleanliness is achieved.

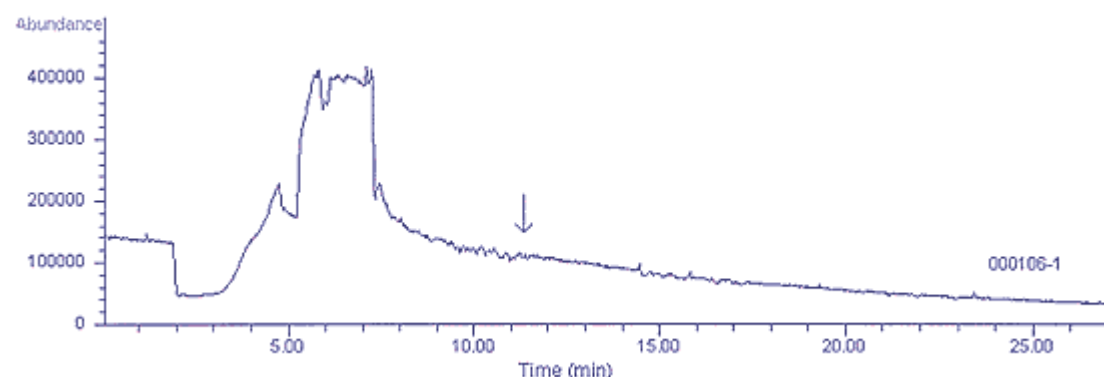


Figure 4.5.2 Total ion chromatogram of a MiniCan that had previously contained 100 ppm of 1,1,1-Trichloroethane and had been cleaned 100 cycles. 1,1,1-trichloroethane elutes at 11.4 min.

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9. Certified laboratories which will analyze Entech Canisters on a fee-for-analysis basis include Galson Laboratories, East Syracuse, NY, and Aerotech Laboratories, Inc., Phoenix, AZ.

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Occupational Safety & Health Administration  
200 Constitution Avenue, NW  
Washington, DC 20210

Formulae: Table 1

MW: Table 1

CAS: Table 2

RTECS: Table 2

METHOD: 5506, Issue 3

EVALUATION: PARTIAL

Issue 1: 15 May 1985

Issue 3: 15 January 1998

OSHA: Table 3

NIOSH: Table 3

ACGIH: Table 3

PROPERTIES: Table 1

<b>Compounds</b>	acenaphthene acenaphthylene anthracene benz[a]anthracene benzo[b]fluoranthene benzo[k]fluoranthene	benzo[ghi]perylene benzo[a]pyrene benzo[e]pyrene chrysene dibenz[a,h]anthracene fluoranthene	fluorene indeno[1,2,3-cd]pyrene naphthalene phenanthrene pyrene
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**NAMES & SYNONYMS:** Polycyclic aromatic hydrocarbons, PAHs; also see Table 2.

SAMPLING		MEASUREMENT	
<b>SAMPLER:</b>	FILTER + SORBENT TUBE (37-mm, 2- $\mu$ m, PTFE + washed XAD-2, 100 mg/50 mg)	<b>TECHNIQUE:</b>	HPLC, FLUORESCENCE/UV DETECTION
<b>FLOW RATE:</b>	2 L/min	<b>ANALYTE:</b>	compounds listed above
<b>VOL-MIN:</b>	200 L	<b>EXTRACTION:</b>	5 mL acetonitrile; ultrasonic bath, 30 to 60 minutes
<b>-MAX:</b>	1000 L	<b>INJECTION VOLUME:</b>	10 to 50 $\mu$ L
<b>SHIPMENT:</b>	transfer filters to culture tubes; wrap sorbent and culture tubes in Al foil; ship @ 0 °C	<b>MOBILE PHASE:</b>	acetonitrile/water gradient @ ambient temperature, 1 mL/min
<b>SAMPLE STABILITY:</b>	unknown; protect from heat and UV light	<b>COLUMN:</b>	250 x 4.6-mm, reversed-phase, 5- $\mu$ m C <sub>18</sub>
<b>FIELD BLANKS:</b>	3 to 10 field blanks per set	<b>DETECTOR:</b>	UV @ 254 nm; fluorescence @ 340 nm (excitation), 425 nm (emission)
<b>MEDIA BLANKS:</b>	6 to 10 media blanks per set	<b>CALIBRATION:</b>	standards in acetonitrile
ACCURACY		<b>RANGE:</b>	see EVALUATION OF METHOD
<b>RANGE STUDIED:</b>	not determined	<b>ESTIMATED LOD:</b>	see EVALUATION OF METHOD
<b>BIAS:</b>	not determined	<b>PRECISION (<math>\hat{S}_r</math>):</b>	see EVALUATION OF METHOD
<b>OVERALL PRECISION (<math>\hat{S}_{rT}</math>):</b>	not determined		
<b>ACCURACY:</b>	not determined		

**APPLICABILITY:** This method is applicable to samples that can be extracted with acetonitrile. This method is not applicable to samples that require a different extraction solvent or contain large amounts of highly adsorptive particulate matter, e.g., fly ash or diesel soot; also, this method is not applicable to asphalt fume samples.

**INTERFERENCES:** Any compound that elutes at the same HPLC retention time may interfere. Heat, ozone, NO<sub>2</sub>, or UV light may cause sample degradation.

**OTHER METHODS:** This revises P&CAM 206 and 251 [1]. Method 5515 uses the same sampling technique, with gas chromatographic measurement [2]. Method 5800 uses the same sampling technique, and a flow-injection method to determine total polycyclic aromatic compounds at two different sets of fluorescent wavelengths [3].

**REAGENTS:**

1. Water, distilled, deionized, degassed.
2. Acetonitrile, HPLC grade, degassed.
3. PAH test mixture,\* a liquid standard containing the PAHs except benzo[e]pyrene (EPA 610 Polynuclear Aromatic Hydrocarbons, Supelco, Cat. No. 4-8743; or equivalent).
4. Benzo[e]pyrene,\* solid (Supelco, Cat. No. 44-2475; or equivalent).

\* See SPECIAL PRECAUTIONS

**EQUIPMENT:**

1. Sampler:
  - a. Filter. 37-mm, 2- $\mu$ m pore size, PTFE membrane filter laminated to PTFE, (Zefluor, Pall Gelman Sciences, Cat. No. P5PJ037; SKC Inc., Cat. No. 225-17-07; or equivalent filter), cellulose spacer ring, 37-mm OD, 32-mm ID, (SKC Inc., Cat. No. 225-23; or equivalent) in a 37-mm cassette filter holder.

NOTE: If sampling is to be done in bright sunlight, use opaque or foil-wrapped cassettes to prevent sample degradation.
  - b. Sorbent tube, washed XAD-2 resin (front = 100 mg; back = 50 mg) (ORBO 43, Supelco, Cat. No. 2-0258; or equivalent), connected to filter with minimum length of PVC tubing. Plastic caps are required after sampling.

NOTE: If pressure drop is excessive or pump fails, use a larger diameter sorbent tube with XAD-2 resin (ORBO 42 Large, Supelco, Cat. No. 2-0264U; or equivalent).
2. Personal sampling pump capable of operating for 8 h at 2 L/min, with flexible connecting tubing.
3. Aluminum foil.
4. Refrigerant, bagged.
5. Culture tubes, PTFE-lined screw cap, 13-mm x 100-mm.
6. Forceps.
7. Syringe filters, 0.45- $\mu$ m, 25-mm, PTFE (Acrodisc-CR, Pall Gelman Sciences, Cat. No. 4219; or equivalent).
8. Pipet, 5-mL.
9. Syringe or micropipets, 1- to 100- $\mu$ L.
10. Ultrasonic bath.
11. HPLC, with gradient capability, fluorescence (excitation @ 340 nm, emission @ 425 nm) and UV (254 nm) detectors in series, electronic integrator, and a 250 x 4.6-mm  $C_8$  column (Vydac 201TP, The Separations Group, Hesperia, CA, Cat. No. 201TP54; or equivalent).
12. Volumetric flasks, 10- and 100-mL.
13. Recommendation: lighting in laboratory should be incandescent or UV-shielded fluorescent.

**SPECIAL PRECAUTIONS:** Treat all polynuclear aromatic hydrocarbons as carcinogens. Samples and unused standards are considered toxic waste. Dispose of in an appropriate manner. Counter tops and equipment should be checked regularly with a "black light" for fluorescence as an indicator of contamination by PAHs.

**SAMPLING:**

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Take personal samples at 2 L/min for a total sample size of 200 to 1000 L.
3. Immediately after sampling, transfer the filter carefully with forceps to a culture tube. Hold filter at edge to avoid disturbing the collected sample. Cap the tube and wrap in aluminum foil.  
NOTE: This step is necessary to avoid loss of analytes by sublimation.
4. Cap the sorbent tube and wrap in aluminum foil.
5. Ship to laboratory in insulated container with bagged refrigerant.

**SAMPLE PREPARATION:**

NOTE: UV light may degrade PAHs; therefore, recommend using yellow, UV-absorbing shields for fluorescent lights or use incandescent lighting.

6. Refrigerate samples upon receipt at laboratory.
7. Extract PAH from filters.
  - a. Add 5.0 mL of acetonitrile to each culture tube containing a filter. Similarly, add 5.0 mL of acetonitrile to each culture tube containing the media and reagent blanks. Cap the tubes.
  - b. Place capped tubes in an ultrasonic bath for 30 to 60 min.
8. Desorb PAH from sorbent.
  - a. Score each sorbent tube with a file in front of the front (larger) sorbent section. Break tube at score line.
  - b. Transfer front glass wool plug and front sorbent section to a culture tube. Transfer back sorbent section, and the middle glass wool plug to a second culture tube.
  - c. Add 5.0 mL acetonitrile to each culture tube. Cap the tubes.
  - d. Place capped tubes in an ultrasonic bath for 30 to 60 min.
9. Filter all sample extracts through an 0.45- $\mu$ m syringe filter.

**CALIBRATION AND QUALITY CONTROL:**

10. Calibrate daily with at least six working standards.  
NOTE: If a benzo[e]pyrene standard is needed, weigh desired amount and add to a known volume of the PAH test mixture.
  - a. Dilute aliquots of the PAH test mixture (containing benzo[e]pyrene if needed) with acetonitrile in 10-mL volumetric flasks. The concentration range should cover most of the PAH concentrations in the samples.
  - b. During analysis, intersperse working standards with samples and blanks.
  - c. Prepare calibration graphs (peak area vs.  $\mu$ g of each PAH per sample).
11. Recovery and desorption efficiency.
  - a. Determine recovery (R) from filters and desorption efficiency (DE) from sorbent tubes at least once for each lot of filters and sorbent tubes used in the range of interest.
    - (1) Filters. Using a microliter syringe or a micropipette, spike four filters at each of five concentration levels with a mixture of the analytes. Allow the filters to dry in the dark overnight. Analyze the filters (steps 7, 9, and 13 through 15). Prepare graphs of R vs. amounts found.
    - (2) Sorbent tubes. Transfer an unused front sorbent section to a culture tube. Prepare a total of 24 culture tubes in order to measure DE at five concentration levels plus blank in quadruplicate. Using a microliter syringe or micropipette, add calibration stock solution directly to sorbent. Cap culture tubes and allow to stand overnight. Desorb and analyze (steps 8, 9, and 13 through 15). Prepare graphs of DE vs. amounts found.
  - b. Check R and DE at two levels for each sample set, in duplicate. Repeat determination of R or DE graphs if checks do not agree to within  $\pm 5\%$  of R or DE graph.
12. Analyze at least three field blanks for each sample medium.

**MEASUREMENT:**

13. Set HPLC according to manufacturer's instructions, conditions on page 5506-~~and~~ steps 14 and 15.
14. Inject sample aliquot (10 to 50  $\mu\text{L}$ ). Start mobile phase gradient:
  - a. Linear gradient from 60% acetonitrile/40% deionized water to 100% acetonitrile at 1 mL/min over 20 min.
  - b. Hold at 100% acetonitrile for 20 min.
  - c. Linear gradient to initial condition, 5 min.
15. Measure peak areas for each analyte using the appropriate detector as specified in Table 1.
 

NOTE 1: The order of elution for the PAHs appears in Table 4.

NOTE 2: If peak area is above the calibration range, dilute with acetonitrile, reanalyze, and apply dilution factor in calculations.

NOTE 3: If sample has many interferences, additional sample cleanup may be necessary.

### CALCULATIONS:

16. Read the mass,  $\mu\text{g}$  (corrected for R or DE) of each analyte found on the filter ( $W$ ) and front sorbent ( $W_f$ ) and back sorbent ( $W_b$ ) sections, and on the average media blank filter ( $B$ ) and front sorbent ( $B_f$ ) and back sorbent ( $B_b$ ) sections from the calibration graphs.
17. Calculate concentration,  $C$  ( $\text{mg}/\text{m}^3$ ), as the sum of the particulate concentration and the vapor concentration in the actual air volume sampled,  $V$  (L).

$$C = \frac{(W + W_f + W_b - B - B_f - B_b)}{V}, \text{ mg/m}^3$$

NOTE 1:  $\mu\text{g}/\text{mL} \equiv \text{mg}/\text{m}^3$

NOTE 2:  $W_f$  and  $W_b$  include analyte originally collected on the filter as particulate, then volatilized during sampling. This can be a significant fraction for many PAHs (e.g., anthracene, fluoranthene, fluorene, naphthalene, phenanthrene).

### EVALUATION OF METHOD:

The UV detector is used to analyze for some PAHs (see Table 1), and the remaining PAHs are analyzed by a fluorescent detector, which gave better sensitivity for some PAHs. The ranges of the limit of detection (LOD) and the limit of quantitation (LOQ) values for the 17 PAHs are reported in Table 4 [4]. The LOD and LOQ values varied because of differences in the detectors used and the concentrations of the standards. Therefore, it is important that the LOD and LOQ values be determined for each set of samples. The LOQs are the lower end of the analytical ranges. The upper end of the analytical ranges were not determined.

This method was evaluated by means of a user check [5]. An independent laboratory prepared spiked filters and sorbent tubes for a recovery and desorption efficiency study (see Table 4). For the filters, except naphthalene, the recovery results were greater than or equal to 75%. Since naphthalene is fairly volatile under ambient conditions, this may account for the poor recovery results. For the sorbent tubes, only four of the 17 analytes had desorption efficiencies that were greater than or equal to 75%. During the user check, the sorbent tubes were extracted by adding 5 mL acetonitrile and were allowed to stand for 30 minutes with occasional swirling. In more recent quality control experiments, the desorption efficiencies were often better for some analytes (see Table 4) [4]. These results were achieved using an ultrasonic bath for 30 to 60 minutes. The results indicated the importance of preparing media spikes for recovery and desorption efficiency studies for each set of samples; moreover, the results reinforce this need when using new lots of media.

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**METHOD REVISED BY:**

L. D. Olsen, B. R. Belinky, C. E. Neumeister, L. B. Jaycox, and D. D. Dollberg, NIOSH/DPSE.

TABLE 1. FORMULAS AND PHYSICAL PROPERTIES.

COMPOUND (by M.W.)	FORMULA	WEIGHT	DETECTOR	MELTING POINT (°C)	BOILING POINT (°C)	REFERENCE
1. NAPHTHALENE	C <sub>10</sub> H <sub>8</sub>	128.17	UV	80.2	218	[6]
2. ACENAPHTHYLENE	C <sub>12</sub> H <sub>8</sub>	152.20	UV	92.5	280	[6]
3. ACENAPHTHENE	C <sub>12</sub> H <sub>10</sub>	154.21	UV	93.4	279	[6]
4. FLUORENE	C <sub>13</sub> H <sub>10</sub>	166.22	UV	115	295	[6]
5. ANTHRACENE	C <sub>14</sub> H <sub>10</sub>	178.23	UV	215	340	[6]
6. PHENANTHRENE	C <sub>14</sub> H <sub>10</sub>	178.23	UV	99.2	340	[6]
7. FLUORANTHENE	C <sub>16</sub> H <sub>10</sub>	202.26	FL	108	384	[6]
8. PYRENE	C <sub>16</sub> H <sub>10</sub>	202.26	FL	151	404	[6]
9. BENZ[a]ANTHRACENE	C <sub>18</sub> H <sub>12</sub>	228.29	FL	167	435	[7]
10. CHRYSENE	C <sub>18</sub> H <sub>12</sub>	228.29	UV	258	448	[6]
11. BENZO[b]FLUORANTHENE	C <sub>20</sub> H <sub>12</sub>	252.32	FL	168	--	[7]
12. BENZO[k]FLUORANTHENE	C <sub>20</sub> H <sub>12</sub>	252.32	FL	217	480	[6]
13. BENZO[a]PYRENE	C <sub>20</sub> H <sub>12</sub>	252.32	FL	177	495	[6, 8]
14. BENZO[e]PYRENE	C <sub>20</sub> H <sub>12</sub>	252.32	FL	178	311	[6]
15. BENZO[ghi]PERYLENE	C <sub>22</sub> H <sub>12</sub>	276.34	FL	278	--	[7]
16. INDENO[1,2,3-cd]PYRENE	C <sub>22</sub> H <sub>12</sub>	276.34	FL	164	--	[7]
17. DIBENZ[a,h]ANTHRACENE	C <sub>22</sub> H <sub>14</sub>	278.35	FL	270	524	[7, 8]

TABLE 2. SYNONYMS, CAS AND RTECS NUMBERS.

COMPOUND (alphabetically)	SYNONYMS, CAS and RTECS Numbers*
1. ACENAPHTHENE	CAS # 83-32-9; RTECS # AB1000000
2. ACENAPHTHYLENE	acenaphthalene; CAS # 208-96-8; RTECS # AB1254000
3. ANTHRACENE	CAS # 120-12-7; RTECS # CA9350000
4. BENZ[a]ANTHRACENE	1,2-benzanthracene; benzo[b]phenanthrene; 2,3-benzophenanthrene; tetraphene; CAS # 56-55-3; RTECS # CV9275000
5. BENZO[b]FLUORANTHENE	3,4-benzofluoranthene; 2,3-benzofluoranthene; benz[e]acephenanthrylene; B(b)F; CAS # 205-99-2; RTECS # CU1400000
6. BENZO[k]FLUORANTHENE	11,12-benzofluoranthene; CAS # 207-08-9; RTECS # DF6350000
7. BENZO[ghi]PERYLENE	1,12-benzoperylene; CAS # 191-24-2; RTECS # DI6200500
8. BENZO[a]PYRENE	3,4-benzopyrene; 6,7-benzopyrene; B(a)P; BP; CAS # 50-32-8; RTECS # DJ3675000
9. BENZO[e]PYRENE	1,2-benzopyrene; 4,5-benzopyrene; B(e)P; CAS # 192-97-2; RTECS # DJ4200000
10. CHRYSENE	1,2-benzophenanthrene; benzo[a]phenanthrene; CAS # 218-01-9; RTECS # GC0700000
11. DIBENZ[a,h]ANTHRACENE	1,2,5,6-dibenzanthracene; CAS # 53-70-3; RTECS # HN2625000
12. FLUORANTHENE	benzo[jk]fluorene; CAS # 206-44-0; RTECS # LL4025000
13. FLUORENE	CAS # 86-73-7; RTECS # LL5670000
14. INDENO[1,2,3-cd]PYRENE	2,3-phenylenepyrene; CAS # 193-39-5; RTECS # NK9300000
15. NAPHTHALENE	naphthene; CAS # 91-20-3; RTECS # QJ0525000
16. PHENANTHRENE	CAS # 85-01-8; RTECS # SF7175000
17. PYRENE	benzo[def]phenanthrene; CAS # 129-00-0; RTECS # UR2450000

\* Data from [6, 8, and 9].

TABLE 3. EXPOSURE LIMITS:

COMPOUND	OSHA <sup>†</sup>	NIOSH <sup>†</sup>	ACGIH <sup>‡</sup>
1. ANTHRACENE	0.2 mg/m <sup>3</sup>	--	
2. BENZ[a]ANTHRACENE	--	--	suspect human carcinogen
3. BENZO[b]FLUORANTHENE	--	--	suspect human carcinogen
4. BENZO[a]PYRENE	0.2 mg/m <sup>3</sup>	--	suspect human carcinogen
5. CHRYSENE	0.2 mg/m <sup>3</sup>	potential occupational carcinogen <sup>§</sup>	animal carcinogen
6. NAPHTHALENE	10 ppm; STEL 15 ppm	10 ppm; STEL 15 ppm	10 ppm; STEL 15 ppm
7. PHENANTHRENE	0.2 mg/m <sup>3</sup>	--	--
8. PYRENE	0.2 mg/m <sup>3</sup>	--	--

\* This table only includes the compounds with established exposure limit values.

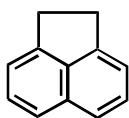
<sup>†</sup> Information from [10].<sup>‡</sup> Information from [11].<sup>§</sup> Information from [12].

TABLE 4. LOD AND LOQ VALUES, AND RECOVERY DATA.

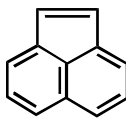
COMPOUND (by elution order)	Range of values <sup>*</sup>		Recoveries (%) <sup>†</sup>	
	LOD (µg per sample)	LOQ (µg per sample)	Filters	Sorbent tubes
1. NAPHTHALENE	0.20 - 0.80	0.39 - 2.6	49.6	68.5
2. ACENAPHTHYLENE	0.090 - 2.0	0.28 - 6.6	98.2	98.2
3. ACENAPHTHENE	0.20 - 5.0	0.58 - 16.	--	--
4. FLUORENE	0.030 - 0.30	0.099 - 0.26	95.0	95.0
5. PHENANTHRENE	0.0070 - 0.060	0.023 - 0.19	99.0, 90.4*	84.0, 92.5*, 82.6*
6. ANTHRACENE	0.0010 - 0.090	0.023 - 0.30	81.8, 94.4*	72.8, 96.2*, 72.9*
7. FLUORANTHENE	0.0020 - 0.090	0.0066 - 0.30	94.9, 90.4*	73.0, 93.5*, 81.7*
8. PYRENE	0.0010 - 0.30	0.0036 - 0.99	94.4, 76.1*	84.9, 77.0*, 75.9*
9. BENZ[a]ANTHRACENE	0.0010 - 0.090	0.0042 - 0.30	86.6, 92.7*	62.4, 95.0*, 72.3*
10. CHRYSENE	0.0070 - 0.20	0.023 - 0.37	94.6, 89.9*	62.7, 89.8*, 74.0*
11. BENZO[e]PYRENE	0.0060 - 0.80	0.020 - 2.6	110	48.3
12. BENZO[b]FLUORANTHENE	0.0030 - 0.20	0.011 - 0.66	94.8	64.2
13. BENZO[k]FLUORANTHENE	0.0020 - 0.040	0.0054 - 0.13	103	53.2
14. BENZO[a]PYRENE	0.0020 - 0.10	0.0051 - 0.33	101, 88.1*	50.4, 91.6*, 68.4*
15. DIBENZ[a,h]ANTHRACENE	0.0040 - 0.60	0.014 - 2.0	76.5	61.0
16. BENZO[ghi]PERYLENE	0.0030 - 0.50	0.011 - 1.7	76.5	61.0
17. INDENO[1,2,3-cd]PYRENE	0.0090 - 0.20	0.027 - 0.66	91.6	36.5

\* Data from [4].

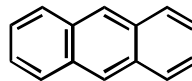
† Data from [5]



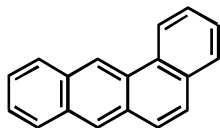
ACENAPHTHENE



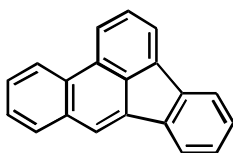
ACENAPHTHYLENE



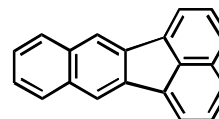
ANTHRACENE



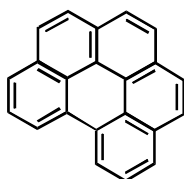
BENZ[a]ANTHRACENE



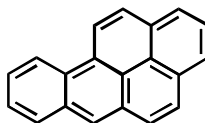
BENZO[b]FLUORANTHENE



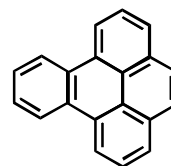
BENZO[k]FLUORANTHENE



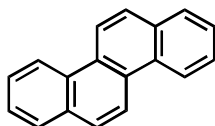
BENZO[g h i]PERYLENE



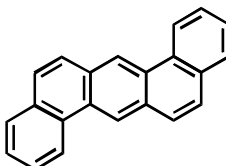
BENZO[a]PYRENE



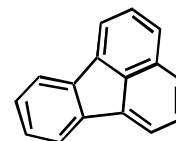
BENZO[e]PYRENE



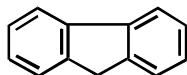
CHRYSENE



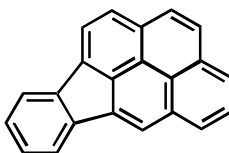
DIBENZ[a,h]ANTHRACENE



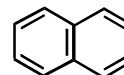
FLUORANTHENE



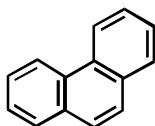
FLUORENE



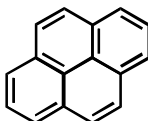
INDENO[1,2,3-c]PYRENE



NAPHTHALENE



PHENANTHRENE



PYRENE

1. Structure of the PAHs.

Figure

# **Appendix E**

## **Analytical Air Sampling Method Detection Limit Summary for OSHA PV 2120/ EPA TO-15**

## Scan Methods Analyte Summary

OSHA PV2120 / TO-15 Analytes	Detection Limits (ppbv)	OSHA PV2120 / TO-15 Analytes	Detection Limits (ppbv)
Acetone	5 ppb	4 - Ethyltoluene	5 ppb
Allyl Chloride	5 ppb	Freon - 11	5 ppb
Benzene	5 ppb	Freon - 12	5 ppb
Benzyl Chloride	5 ppb	Freon - 113	
Bromodichloromethane	5 ppb	Freon - 114	5 ppb
Bromoform	5 ppb	Heptane	5 ppb
Bromomethane	5 ppb	Hexane	5 ppb
1,3 - Butadiene	5 ppb	Isopropyl Alcohol	20 ppb
Hexachloro - 1,3 - Butadiene	5 ppb	Methyl Butyl Ketone	20 ppb
Carbon Disulfide	5 ppb	Methylene Chloride	5 ppb
Carbon Tetrachloride	5 ppb	Methyl Ethyl Ketone	5 ppb
Chlorobenzene	5 ppb	Methyl Isobutyl Ketone	20 ppb
Chloroethane	5 ppb	Methyl Tert - Butyl Ether	5 ppb
Chloroform	5 ppb	Propylene	5 ppb
Chloromethane	5 ppb	Styrene	5 ppb
Cyclohexane	5 ppb	1,1,2,2 - Tetrachloroethane	5 ppb
Dibromochloromethane	5 ppb	Tetrahydrofuran	5 ppb
1,2 - Dibromomethane	5 ppb	Tetrachloroethylene	5 ppb
1,2 - Dichlorobenzene	5 ppb	1,2,4 - Trichlorobenzene	5 ppb
1,3 - Dichlorobenzene	5 ppb	1,1,1 - Trichloroethane	5 ppb
1,4 - Dichlorobenzene	5 ppb	1,1,2 - Trichloroethane	5 ppb
1,1 - Dichloroethane	5 ppb	Trichloroethylene	5 ppb
1,2 - Dichloroethane	5 ppb	1,2,4 - Trimethylbenzene	5 ppb
1,1 - Dichloroethene	5 ppb	1,3,5 - Trimethylbenzene	5 ppb
trans - 1,2 - Dichloroethene	5 ppb	2,2,4 - Trimethylpentane	5 ppb
cis - 1,2 - Dichloroethylene	5 ppb	Toluene	5 ppb
1,2 - Dichloropropane	5 ppb	Vinyl Acetate	5 ppb
cis - 1,3 - Dichloropropene	5 ppb	Vinyl Bromide	5 ppb
trans - 1,3 - Dichloropropene	5 ppb	Vinyl Chloride	5 ppb
1,4 - Dioxane	20 ppb	m,p - Xylene	10 ppb
Ethyl Acetate	5 ppb	o - Xylene	5 ppb
Ethylbenzene	5 ppb		

# **Appendix F**

## **Laboratory Analysis Report**



Mr. James Panasiuk  
Center for Toxicology & Env. Health LLC  
5120 North Shore Drive  
North Little Rock, AR 72118

November 29, 2007

DOH ELAP# 11626

Account# 13913

Login# L162750

Dear Mr. Panasiuk:

Enclosed are the analytical results & data package for the samples received by our laboratory on November 08, 2007. All test results meet the quality control requirements of AIHA and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. Unless otherwise requested, all samples will be discarded 14 days from the date of this report.

Please contact Pamela Weaver at (888) 432-5227, if you would like any additional information regarding this report.

Thank you for using Galson Laboratories.

Sincerely,

Galson Laboratories

F. Joseph Unangst  
Laboratory Director

Enclosure(s)



6601 Kirkville Road  
East Syracuse, NY 13057  
(315) 432-5227  
FAX: (315) 437-0571  
www.galsonlabs.com

# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 13-NOV-07 - 14-NOV-07  
Report ID : 556589  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102PAH001 Lab ID : L162750-1 Air Volume : 1451.06 Liter  
Date Sampled : 11/02/07 Date Analyzed : 11/13/07

Parameter	LOQ ug	Filter ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000028
Pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000033
Benzo(g,h,i)perylene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000024
Benzo(e)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000027
INDENO-1,2,3-CD-PYRENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000024
Benzo(b)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000027
Fluoranthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000025
Benzo(k)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000027
Acenaphthylene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000033
Chrysene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000030
Benzo(a)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000027
DIBENZO(A,H)ANTHRACENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00028	<0.000024
1-Nitropyrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000020
Benzo(a)anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000022
Acenaphthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000033
Phenanthrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000028
Fluorene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000030
Naphthalene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00021	<0.000039

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media : FilterTube

Submitted by: AEC  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by: Tony D'Amico

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms  
> -Greater Than ug -Micrograms l -Liters NS -Not Specified  
NA -Not Applicable ND -Not Detected ppm -Parts per Million LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557

Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 13-NOV-07 - 14-NOV-07  
Report ID : 556589

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102PAH002      Lab ID : L162750-2      Air Volume : 1480.8 Liter  
Date Sampled : 11/02/07      Date Analyzed : 11/13/07

Parameter	LOQ ug	Filter ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000028
Pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000033
Benzo(g,h,i)perylene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
Benzo(e)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
INDENO-1,2,3-CD-PYRENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
Benzo(b)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
Fluoranthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000024
Benzo(k)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
Acenaphthylene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000033
Chrysene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000029
Benzo(a)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
DIBENZO(A,H)ANTHRACENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
1-Nitropyrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000020
Benzo(a)anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000022
Acenaphthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000032
Phenanthrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000028
Fluorene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000030
Naphthalene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000039

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media : FilterTube

Submitted by: AEC

Approved by : rjw

Date : 15-NOV-07 NYS DOH # : 11626

QC by: Tony D'Amico

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified
NA -Not Applicable	ND -Not Detected	ppm -Parts per Million	LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557

Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 13-NOV-07 - 14-NOV-07  
Report ID : 556589

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102PAH003      Lab ID : L162750-3      Air Volume : 1496 Liter  
Date Sampled : 11/02/07      Date Analyzed : 11/14/07

Parameter	LOQ ug	Filter ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000028
Pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000032
Benzo(g,h,i)perylene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
Benzo(e)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
INDENO-1,2,3-CD-PYRENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
Benzo(b)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
Fluoranthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000024
Benzo(k)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
Acenaphthylene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000032
Chrysene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000029
Benzo(a)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
DIBENZO(A,H)ANTHRACENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000023
1-Nitropyrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000020
Benzo(a)anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000021
Acenaphthene	0.3	<0.3	0.65	<0.3	0.64	0.00043	0.000068
Phenanthrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000028
Fluorene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000029
Naphthalene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000038

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media : FilterTube

Submitted by: AEC

Approved by : rjw

Date : 15-NOV-07 NYS DOH # : 11626

QC by: Tony D'Amico

< -Less Than      mg -Milligrams      m3 -Cubic Meters      kg -Kilograms  
> -Greater Than      ug -Micrograms      l -Liters      NS -Not Specified  
NA -Not Applicable      ND -Not Detected      ppm -Parts per Million      LOQ-Limit of Quantitation

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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557

Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 13-NOV-07 - 14-NOV-07  
Report ID : 556589

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102PAH004 Lab ID : L162750-4 Air Volume : 1482.5 Liter  
Date Sampled : 11/02/07 Date Analyzed : 11/14/07

Parameter	LOQ ug	Filter ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000028
Pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000033
Benzo(g,h,i)perylene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
Benzo(e)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
INDENO-1,2,3-CD-PYRENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
Benzo(b)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
Fluoranthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000024
Benzo(k)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
Acenaphthylene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000033
Chrysene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000029
Benzo(a)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000026
DIBENZO(A,H)ANTHRACENE	0.4	<0.3	<0.3	<0.3	<0.4	<0.00027	<0.000024
1-Nitropyrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000020
Benzo(a)anthracene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000022
Acenaphthene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000032
Phenanthrene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000028
Fluorene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000030
Naphthalene	0.3	<0.3	<0.3	<0.3	<0.3	<0.00020	<0.000039

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media : FilterTube

Submitted by: AEC

Approved by : rjw

Date : 15-NOV-07 NYS DOH # : 11626

QC by: Tony D'Amico

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms  
> -Greater Than ug -Micrograms l -Liters NS -Not Specified  
NA -Not Applicable ND -Not Detected ppm -Parts per Million LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 13-NOV-07 - 14-NOV-07  
Report ID : 556589  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102PAH005 Lab ID : L162750-5 Air Volume : NA  
Date Sampled : 11/02/07 Date Analyzed : 11/14/07

Parameter	LOQ ug	Filter ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Anthracene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Pyrene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
Benzo(g,h,i)perylene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
Benzo(e)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
INDENO-1,2,3-CD-PYRENE	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
Benzo(b)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
Fluoranthene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Benzo(k)fluoranthene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
Acenaphthylene	0.3	<0.3	0.46	<0.3	0.46	NA	NA
Chrysene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
Benzo(a)pyrene	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
DIBENZO(A,H)ANTHRACENE	0.4	<0.3	<0.3	<0.3	<0.4	NA	NA
1-Nitropyrene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Benzo(a)anthracene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Acenaphthene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Phenanthrene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Fluorene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA
Naphthalene	0.3	<0.3	<0.3	<0.3	<0.3	NA	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media : FilterTube

Submitted by: AEC

Approved by : rjw

Date : 15-NOV-07 NYS DOH # : 11626

QC by: Tony D'Amico

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms  
> -Greater Than ug -Micrograms l -Liters NS -Not Specified  
NA -Not Applicable ND -Not Detected ppm -Parts per Million LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



## LABORATORY ANALYSIS REPORT

6601 Kirkville Road  
East Syracuse, NY 13057  
(315) 432-5227  
FAX: (315) 437-0571  
www.galsonlabs.com

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC001      Lab ID : L162750-6  
Date Sampled : 11/02/07      Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Propylene	5	<5
Freon-12	5	<5
Chloromethane	5	<5
Freon-114	5	<5
Vinyl Chloride	5	<5
1,3-Butadiene	5	<5
Bromomethane	5	<5
Chloroethane	5	<5
Vinyl Bromide	5	<5
Freon-11	5	<5
Isopropyl Alcohol	5	10
Acetone	5	30
1,1-Dichloroethene	5	<5
Methylene Chloride	5	<5
Freon-113	5	<5
Allyl Chloride	5	<5
Carbon Disulfide	5	<5
Trans-1,2-Dichloroethene	5	<5
Methyl Tert-Butyl Ether	5	<5
1,1-Dichloroethane	5	<5
Vinyl Acetate	5	<5
Methyl Ethyl Ketone	5	<5
cis-1,2-Dichloroethylene	5	<5
Hexane	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07    NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC001 Lab ID : L162750-6  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethyl Acetate	5	<5
Chloroform	5	<5
Tetrahydrofuran	5	<5
1,2-Dichloroethane	5	<5
1,1,1-Trichloroethane	5	<5
Cyclohexane	5	<5
Carbon Tetrachloride	5	<5
Benzene	5	<5
1,4-Dioxane	20	<20
2,2,4-Trimethylpentane	5	<5
Heptane	5	<5
1,2-Dichloropropane	5	<5
Trichloroethylene	5	<5
Bromodichloromethane	5	<5
cis-1,3-Dichloropropene	5	<5
trans-1,3-Dichloropropene	5	<5
1,1,2-Trichloroethane	5	<5
Toluene	5	13
Dibromochloromethane	5	<5
Methyl Isobutyl Ketone	20	<20
Methyl Butyl Ketone	20	<20
1,2-Dibromoethane	5	<5
Tetrachloroethylene	5	<5
Chlorobenzene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC001 Lab ID : L162750-6  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethylbenzene	5	<5
Bromoform	5	<5
m & p-xylene	10	<10
Styrene	5	<5
o-Xylene	5	<5
1,1,2,2-Tetrachloroethane	5	<5
4-Ethyltoluene	5	<5
1,3,5-Trimethylbenzene	5	<5
1,2,4-Trimethylbenzene	5	<5
1,3-Dichlorobenzene	5	<5
Benzyl Chloride	5	<5
1,4-Dichlorobenzene	5	<5
1,2-Dichlorobenzene	5	<5
1,2,4-Trichlorobenzene	5	<5
Hexachloro-1,3-Butadiene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/TO15  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC002 Lab ID : L162750-7  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Propylene	5	<5
Freon-12	5	<5
Chloromethane	5	<5
Freon-114	5	<5
Vinyl Chloride	5	<5
1,3-Butadiene	5	<5
Bromomethane	5	<5
Chloroethane	5	<5
Vinyl Bromide	5	<5
Freon-11	5	<5
Isopropyl Alcohol	5	7
Acetone	5	20
1,1-Dichloroethene	5	<5
Methylene Chloride	5	<5
Freon-113	5	<5
Allyl Chloride	5	<5
Carbon Disulfide	5	<5
Trans-1,2-Dichloroethene	5	<5
Methyl Tert-Butyl Ether	5	<5
1,1-Dichloroethane	5	<5
Vinyl Acetate	5	<5
Methyl Ethyl Ketone	5	<5
cis-1,2-Dichloroethylene	5	<5
Hexane	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC002 Lab ID : L162750-7  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethyl Acetate	5	<5
Chloroform	5	<5
Tetrahydrofuran	5	<5
1,2-Dichloroethane	5	<5
1,1,1-Trichloroethane	5	<5
Cyclohexane	5	<5
Carbon Tetrachloride	5	<5
Benzene	5	<5
1,4-Dioxane	20	<20
2,2,4-Trimethylpentane	5	<5
Heptane	5	<5
1,2-Dichloropropane	5	<5
Trichloroethylene	5	<5
Bromodichloromethane	5	<5
cis-1,3-Dichloropropene	5	<5
trans-1,3-Dichloropropene	5	<5
1,1,2-Trichloroethane	5	<5
Toluene	5	12
Dibromochloromethane	5	<5
Methyl Isobutyl Ketone	20	<20
Methyl Butyl Ketone	20	<20
1,2-Dibromoethane	5	<5
Tetrachloroethylene	5	<5
Chlorobenzene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC002      Lab ID : L162750-7  
Date Sampled : 11/02/07      Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethylbenzene	5	<5
Bromoform	5	<5
m & p-xylene	10	<10
Styrene	5	<5
o-Xylene	5	<5
1,1,2,2-Tetrachloroethane	5	<5
4-Ethyltoluene	5	<5
1,3,5-Trimethylbenzene	5	<5
1,2,4-Trimethylbenzene	5	<5
1,3-Dichlorobenzene	5	<5
Benzyl Chloride	5	<5
1,4-Dichlorobenzene	5	<5
1,2-Dichlorobenzene	5	<5
1,2,4-Trichlorobenzene	5	<5
Hexachloro-1,3-Butadiene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/TO15  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07    NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC003 Lab ID : L162750-8  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Propylene	5	<5
Freon-12	5	<5
Chloromethane	5	<5
Freon-114	5	<5
Vinyl Chloride	5	<5
1,3-Butadiene	5	<5
Bromomethane	5	<5
Chloroethane	5	<5
Vinyl Bromide	5	<5
Freon-11	5	<5
Isopropyl Alcohol	5	16
Acetone	5	10
1,1-Dichloroethene	5	<5
Methylene Chloride	5	<5
Freon-113	5	<5
Allyl Chloride	5	<5
Carbon Disulfide	5	<5
Trans-1,2-Dichloroethene	5	<5
Methyl Tert-Butyl Ether	5	<5
1,1-Dichloroethane	5	<5
Vinyl Acetate	5	<5
Methyl Ethyl Ketone	5	<5
cis-1,2-Dichloroethylene	5	<5
Hexane	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC003      Lab ID : L162750-8  
Date Sampled : 11/02/07      Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethyl Acetate	5	<5
Chloroform	5	<5
Tetrahydrofuran	5	<5
1,2-Dichloroethane	5	<5
1,1,1-Trichloroethane	5	<5
Cyclohexane	5	<5
Carbon Tetrachloride	5	<5
Benzene	5	<5
1,4-Dioxane	20	<20
2,2,4-Trimethylpentane	5	<5
Heptane	5	<5
1,2-Dichloropropane	5	<5
Trichloroethylene	5	<5
Bromodichloromethane	5	<5
cis-1,3-Dichloropropene	5	<5
trans-1,3-Dichloropropene	5	<5
1,1,2-Trichloroethane	5	<5
Toluene	5	8
Dibromochloromethane	5	<5
Methyl Isobutyl Ketone	20	<20
Methyl Butyl Ketone	20	<20
1,2-Dibromoethane	5	<5
Tetrachloroethylene	5	<5
Chlorobenzene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07    NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC003 Lab ID : L162750-8  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethylbenzene	5	<5
Bromoform	5	<5
m & p-xylene	10	<10
Styrene	5	<5
o-Xylene	5	<5
1,1,2,2-Tetrachloroethane	5	<5
4-Ethyltoluene	5	<5
1,3,5-Trimethylbenzene	5	<5
1,2,4-Trimethylbenzene	5	<5
1,3-Dichlorobenzene	5	<5
Benzyl Chloride	5	<5
1,4-Dichlorobenzene	5	<5
1,2-Dichlorobenzene	5	<5
1,2,4-Trichlorobenzene	5	<5
Hexachloro-1,3-Butadiene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/TO15  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC004 Lab ID : L162750-9  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Propylene	5	<5
Freon-12	5	<5
Chloromethane	5	<5
Freon-114	5	<5
Vinyl Chloride	5	<5
1,3-Butadiene	5	<5
Bromomethane	5	<5
Chloroethane	5	<5
Vinyl Bromide	5	<5
Freon-11	5	<5
Isopropyl Alcohol	5	6
Acetone	5	83
1,1-Dichloroethene	5	<5
Methylene Chloride	5	17
Freon-113	5	<5
Allyl Chloride	5	<5
Carbon Disulfide	5	<5
Trans-1,2-Dichloroethene	5	<5
Methyl Tert-Butyl Ether	5	<5
1,1-Dichloroethane	5	<5
Vinyl Acetate	5	<5
Methyl Ethyl Ketone	5	<5
cis-1,2-Dichloroethylene	5	<5
Hexane	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC004 Lab ID : L162750-9  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethyl Acetate	5	<5
Chloroform	5	<5
Tetrahydrofuran	5	<5
1,2-Dichloroethane	5	<5
1,1,1-Trichloroethane	5	<5
Cyclohexane	5	<5
Carbon Tetrachloride	5	<5
Benzene	5	<5
1,4-Dioxane	20	<20
2,2,4-Trimethylpentane	5	<5
Heptane	5	<5
1,2-Dichloropropane	5	<5
Trichloroethylene	5	<5
Bromodichloromethane	5	<5
cis-1,3-Dichloropropene	5	<5
trans-1,3-Dichloropropene	5	<5
1,1,2-Trichloroethane	5	<5
Toluene	5	24
Dibromochloromethane	5	<5
Methyl Isobutyl Ketone	20	<20
Methyl Butyl Ketone	20	<20
1,2-Dibromoethane	5	<5
Tetrachloroethylene	5	<5
Chlorobenzene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556470  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC004 Lab ID : L162750-9  
Date Sampled : 11/02/07 Date Analyzed : 11/09/07

Parameter	LOQ ug	Conc ppbv
Ethylbenzene	5	<5
Bromoform	5	<5
m & p-xylene	10	<10
Styrene	5	<5
o-Xylene	5	<5
1,1,2,2-Tetrachloroethane	5	<5
4-Ethyltoluene	5	<5
1,3,5-Trimethylbenzene	5	<5
1,2,4-Trimethylbenzene	5	<5
1,3-Dichlorobenzene	5	<5
Benzyl Chloride	5	<5
1,4-Dichlorobenzene	5	<5
1,2-Dichlorobenzene	5	<5
1,2,4-Trichlorobenzene	5	<5
Hexachloro-1,3-Butadiene	5	<5

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Analytical Method : mod.OSHA PV2120/TO15  
Collection Media : Mini Can

Submitted by: NKP/KAW  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by : Tony D'Amico

< -Less Than	MG -Milligrams	M3 -Cubic Meters
> -Greater Than	UG -Micrograms	L -Liters
NA -Not Applicable	ND -Not Detected	ppbv-Parts per Billion Volume
NS -Not Specified	KG -Kilograms	LOQ -Limit of Quantitation



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556471  
Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC001

Lab ID : L162750-6

<u>Tentatively Identified Compounds</u>	<u>CAS Number</u>	<u>Retention Time</u>	<u>Estimated Concentration</u> ppbv
No Volatiles Found			

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by: Tony D'Amico

< -Less Than      mg -Milligrams      m3 -Cubic Meters      kg -Kilograms  
> -Greater Than    ug -Micrograms      l -Liters      LOQ -Limit of Quantitation  
NA -Not Applicable    ND -Not Detected    NS -Not Specified    ppbv-Parts per Billion Volume

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557

Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556471

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC002

Lab ID : L162750-7

<u>Tentatively Identified Compounds</u>	<u>CAS Number</u>	<u>Retention Time</u>	<u>Estimated Concentration</u> <u>ppbv</u>
---	-------------------	-----------------------	---

No Volatiles Found

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by: Tony D'Amico

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	LOQ -Limit of Quantitation
NA -Not Applicable	ND -Not Detected	NS -Not Specified	ppbv-Parts per Billion Volume

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557

Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556471

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC003

Lab ID : L162750-8

<u>Tentatively Identified Compounds</u>	<u>CAS Number</u>	<u>Retention Time</u>	<u>Estimated Concentration</u> <u>ppbv</u>
---	-------------------	-----------------------	---

No Volatiles Found

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by: Tony D'Amico

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	LOQ -Limit of Quantitation
NA -Not Applicable	ND -Not Detected	NS -Not Specified	ppbv-Parts per Billion Volume

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



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# LABORATORY ANALYSIS REPORT

Client : Center for Toxicology & Env. Health LLC  
Site : NS  
Project No. : 4557  
Date Sampled : 02-NOV-07  
Date Received : 08-NOV-07  
Date Analyzed : 09-NOV-07  
Report ID : 556471

Account No.: 13913  
Login No. : L162750

Client ID : CLMS1102MC004

Lab ID : L162750-9

<u>Tentatively Identified Compounds</u>	<u>CAS Number</u>	<u>Retention Time</u>	<u>Estimated Concentration ppbv</u>
Acetaldehyde	000075-07-0	5.35	9.1

Analytical Method : mod.OSHA PV2120/T015  
Collection Media : Mini Can

Submitted by: NKP  
Approved by : rjw  
Date : 15-NOV-07 NYS DOH # : 11626  
QC by: Tony D'Amico

< -Less Than      mg -Milligrams      m3 -Cubic Meters      kg -Kilograms  
> -Greater Than      ug -Micrograms      l -Liters      LOQ -Limit of Quantitation  
NA -Not Applicable      ND -Not Detected      NS -Not Specified      ppbv-Parts per Billion Volume

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.



## LABORATORY FOOTNOTE REPORT

6601 Kirkville Road  
East Syracuse, NY 13057  
(315) 432-5227  
FAX: (315) 437-0571  
www.galsonlabs.com

Client Name : Center for Toxicology & Env. Health LLC  
Site :  
Project No. : 4557

Date Sampled : 02-NOV-07      Account No.: 13913  
Date Received: 08-NOV-07      Login No. : L162750  
Date Analyzed: 09-NOV-07 - 14-NOV-07

Unless otherwise noted below, all quality control results associated with the samples were within established control limits and/or do not adversely affect the sample results.

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceeding the final result column may have been rounded in order to fit the report format and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

L162750 (Report ID: 556470) : SOP: IN-VOCS.R02

L162750 (Report ID: 556589) : SOPs: il-n5506(1)

Sample results have not been corrected for the blank value. A laboratory blank was analyzed along with the samples and was beneath the level of quantitation.  
method : Mod. NIOSH 5506; HPLC/UV-FL  
Results corrected for compound-specific desorption efficiencies.

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified
NA -Not Applicable	ND -Not Detected	ppm -Parts per Million	

## **Appendix G**

### **Analytical Air Sampling Summary for VOCs + TICs**

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	NO VOLATILES FOUND	N		
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	PROPYLENE	N	<0.009	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	FREON 12	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CHLOROMETHANE	N	<0.01	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	FREON 114	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	VINYL CHLORIDE	N	<0.01	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,3-BUTADIENE	N	<0.01	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	BROMOMETHANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CHLOROETHANE	N	<0.01	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	VINYL BROMIDE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	FREON 11	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	ISOPROPYL ALCOHOL	Y	0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	ACETONE	Y	0.07	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,1-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	METHYLENE CHLORIDE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	FREON 113	N	<0.04	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	ALLYL CHLORIDE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CARBON DISULFIDE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	TRANS-1,2-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	METHYL TERTIARY BUTYL ETHER	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,1-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	VINYL ACETATE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	METHYL ETHYL KETONE	N	<0.01	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CIS-1,2-DICHLOROETHYLENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	HEXANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	ETHYL ACETATE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CHLOROFORM	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	TETRAHYDROFURAN	N	<0.01	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,2-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,1,1-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CYCLOHEXANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CARBON TETRACHLORIDE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	BENZENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,4-DIOXANE	N	<0.07	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	2,2,4-TRIMETHYLPENTANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	HEPTANE	N	<0.02	mg/m3

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,2-DICHLOROPROPANE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	TRICHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	BROMODICHLOROMETHANE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CIS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	TRANS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,1,2-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	TOLUENE	Y	0.05	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	DIBROMOCHLOROMETHANE	N	<0.04	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	METHYL ISOBUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	METHYL BUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,2-DIBROMOETHANE	N	<0.04	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	TETRACHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	CHLOROBENZENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	ETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	BROMOFORM	N	<0.05	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	M,P-XYLENES	N	<0.04	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	STYRENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	O-XYLENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,1,2,2-TETRACHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	4-ETHYLTOLUENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,3,5-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,2,4-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,3-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	BENZYL CHLORIDE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,4-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,2-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	1,2,4-TRICHLOROBENZENE	N	<0.04	mg/m3
CLMS1102MC001	11/2/2007	4:49	Pump Station 1	HEXACHLORO-1,3-BUTADIENE	N	<0.05	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	NO VOLATILES FOUND	N		
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	PROPYLENE	N	<0.009	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	FREON 12	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CHLOROMETHANE	N	<0.01	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	FREON 114	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	VINYL CHLORIDE	N	<0.01	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,3-BUTADIENE	N	<0.01	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	BROMOMETHANE	N	<0.02	mg/m3

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CHLOROETHANE	N	<0.01	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	VINYL BROMIDE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	FREON 11	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	ISOPROPYL ALCOHOL	Y	0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	ACETONE	Y	0.05	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,1-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	METHYLENE CHLORIDE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	FREON 113	N	<0.04	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	ALLYL CHLORIDE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CARBON DISULFIDE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	TRANS-1,2-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	METHYL TERTIARY BUTYL ETHER	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,1-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	VINYL ACETATE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	METHYL ETHYL KETONE	N	<0.01	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CIS-1,2-DICHLOROETHYLENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	HEXANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	ETHYL ACETATE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CHLOROFORM	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	TETRAHYDROFURAN	N	<0.01	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,2-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,1,1-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CYCLOHEXANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CARBON TETRACHLORIDE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	BENZENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,4-DIOXANE	N	<0.07	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	2,2,4-TRIMETHYLPENTANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	HEPTANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,2-DICHLOROPROPANE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	TRICHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	BROMODICHLOROMETHANE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CIS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	TRANS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,1,2-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	TOLUENE	Y	0.05	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	DIBROMOCHLOROMETHANE	N	<0.04	mg/m3

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	METHYL ISOBUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	METHYL BUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,2-DIBROMOETHANE	N	<0.04	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	TETRACHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	CHLOROBENZENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	ETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	BROMOFORM	N	<0.05	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	M,P-XYLENES	N	<0.04	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	STYRENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	O-XYLENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,1,2,2-TETRACHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	4-ETHYLTOLUENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,3,5-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,2,4-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,3-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	BENZYL CHLORIDE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,4-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,2-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	1,2,4-TRICHLOROBENZENE	N	<0.04	mg/m3
CLMS1102MC002	11/2/2007	4:21	Pump Station 2	HEXACHLORO-1,3-BUTADIENE	N	<0.05	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	NO VOLATILES FOUND	N		
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	PROPYLENE	N	<0.009	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	FREON 12	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CHLOROMETHANE	N	<0.01	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	FREON 114	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	VINYL CHLORIDE	N	<0.01	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,3-BUTADIENE	N	<0.01	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	BROMOMETHANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CHLOROETHANE	N	<0.01	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	VINYL BROMIDE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	FREON 11	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	ISOPROPYL ALCOHOL	Y	0.04	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	ACETONE	Y	0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,1-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	METHYLENE CHLORIDE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	FREON 113	N	<0.04	mg/m3

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	ALLYL CHLORIDE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CARBON DISULFIDE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	TRANS-1,2-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	METHYL TERTIARY BUTYL ETHER	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,1-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	VINYL ACETATE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	METHYL ETHYL KETONE	N	<0.01	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CIS-1,2-DICHLOROETHYLENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	HEXANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	ETHYL ACETATE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CHLOROFORM	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	TETRAHYDROFURAN	N	<0.01	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,2-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,1,1-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CYCLOHEXANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CARBON TETRACHLORIDE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	BENZENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,4-DIOXANE	N	<0.07	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	2,2,4-TRIMETHYLPENTANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	HEPTANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,2-DICHLOROPROPANE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	TRICHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	BROMODICHLOROMETHANE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CIS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	TRANS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,1,2-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	TOLUENE	Y	0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	DIBROMOCHLOROMETHANE	N	<0.04	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	METHYL ISOBUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	METHYL BUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,2-DIBROMOETHANE	N	<0.04	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	TETRACHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	CHLOROBENZENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	ETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	BROMOFORM	N	<0.05	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	M,P-XYLENES	N	<0.04	mg/m3

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	STYRENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	O-XYLENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,1,2,2-TETRACHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	4-ETHYLTOLUENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,3,5-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,2,4-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,3-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	BENZYL CHLORIDE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,4-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,2-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	1,2,4-TRICHLOROBENZENE	N	<0.04	mg/m3
CLMS1102MC003	11/2/2007	4:32	Pump Station 3	HEXACHLORO-1,3-BUTADIENE	N	<0.05	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	ACETALDEHYDE	N		
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	PROPYLENE	N	<0.009	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	FREON 12	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CHLOROMETHANE	N	<0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	FREON 114	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	VINYL CHLORIDE	N	<0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,3-BUTADIENE	N	<0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	BROMOMETHANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CHLOROETHANE	N	<0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	VINYL BROMIDE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	FREON 11	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	ISOPROPYL ALCOHOL	Y	0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	ACETONE	Y	0.2	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,1-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	METHYLENE CHLORIDE	Y	0.06	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	FREON 113	N	<0.04	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	ALLYL CHLORIDE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CARBON DISULFIDE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	TRANS-1,2-DICHLOROETHENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	METHYL TERTIARY BUTYL ETHER	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,1-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	VINYL ACETATE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	METHYL ETHYL KETONE	N	<0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CIS-1,2-DICHLOROETHYLENE	N	<0.02	mg/m3

## *Analytical Air Sampling Summary for Minicans*

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	HEXANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	ETHYL ACETATE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CHLOROFORM	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	TETRAHYDROFURAN	N	<0.01	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,2-DICHLOROETHANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,1,1-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CYCLOHEXANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CARBON TETRACHLORIDE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	BENZENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,4-DIOXANE	N	<0.07	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	2,2,4-TRIMETHYLPENTANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	HEPTANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,2-DICHLOROPROPANE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	TRICHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	BROMODICHLOROMETHANE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CIS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	TRANS-1,3-DICHLOROPROPENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,1,2-TRICHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	TOLUENE	Y	0.09	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	DIBROMOCHLOROMETHANE	N	<0.04	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	METHYL ISOBUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	METHYL BUTYL KETONE	N	<0.08	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,2-DIBROMOETHANE	N	<0.04	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	TETRACHLOROETHYLENE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	CHLOROBENZENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	ETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	BROMOFORM	N	<0.05	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	M,P-XYLENES	N	<0.04	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	STYRENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	O-XYLENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,1,2,2-TETRACHLOROETHANE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	4-ETHYLTOLUENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,3,5-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,2,4-TRIMETHYLBENZENE	N	<0.02	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,3-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	BENZYL CHLORIDE	N	<0.03	mg/m3

## ***Analytical Air Sampling Summary for Minicans***

<b>Sample</b>	<b>Date</b>	<b>Start Time</b>	<b>Location</b>	<b>Analyte</b>	<b>Detect Flag</b>	<b>Concentration</b>	<b>Units</b>
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,4-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,2-DICHLOROBENZENE	N	<0.03	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	1,2,4-TRICHLOROBENZENE	N	<0.04	mg/m3
CLMS1102MC004	11/2/2007	4:40	Pump Station 4	HEXACHLORO-1,3-BUTADIENE	N	<0.05	mg/m3

## **Appendix H**

### **Analytical Air Sampling Summary for Polycyclic Aromatic Hydrocarbons (PAHs)**

## **Analytical Air Sampling Summary for Polycyclic Aromatic Hydrocarbons (PAHs)**

<b>Sample</b>	<b>Date</b>	<b>Start Time</b>	<b>Location</b>	<b>Analyte</b>	<b>Detect Flag</b>	<b>Concentration</b>	<b>Units</b>
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	ANTHRACENE	N	<0.000028	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	PYRENE	N	<0.000033	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	BENZO(G,H,I)PERYLENE	N	<0.000024	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	BENZO(E)PYRENE	N	<0.000027	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	INDENO-1,2,3-CD-PYRENE	N	<0.000024	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	BENZO(B)FLUORANTHENE	N	<0.000027	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	FLUORANTHENE	N	<0.000025	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	BENZO(K)FLUORANTHENE	N	<0.000027	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	ACENAPHTHYLENE	N	<0.000033	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	CHRYSENE	N	<0.000030	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	BENZO(A)PYRENE	N	<0.000027	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	DIBENZO(A,H)ANTHRACENE	N	<0.000024	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	1-NITROPYRENE	N	<0.000020	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	BENZO(A)ANTHRACENE	N	<0.000022	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	ACENAPHTHENE	N	<0.000033	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	PHENANTHRENE	N	<0.000028	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	FLUORENE	N	<0.000030	ppm
CLMS1102PAH001	11/2/2007	4:49	Pump Station 1	NAPHTHALENE	N	<0.000039	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	ANTHRACENE	N	<0.000028	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	PYRENE	N	<0.000033	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	BENZO(G,H,I)PERYLENE	N	<0.000024	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	BENZO(E)PYRENE	N	<0.000026	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	INDENO-1,2,3-CD-PYRENE	N	<0.000024	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	BENZO(B)FLUORANTHENE	N	<0.000026	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	FLUORANTHENE	N	<0.000024	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	BENZO(K)FLUORANTHENE	N	<0.000026	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	ACENAPHTHYLENE	N	<0.000033	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	CHRYSENE	N	<0.000029	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	BENZO(A)PYRENE	N	<0.000026	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	DIBENZO(A,H)ANTHRACENE	N	<0.000024	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	1-NITROPYRENE	N	<0.000020	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	BENZO(A)ANTHRACENE	N	<0.000022	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	ACENAPHTHENE	N	<0.000032	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	PHENANTHRENE	N	<0.000028	ppm
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	FLUORENE	N	<0.000030	ppm

## **Analytical Air Sampling Summary for Polycyclic Aromatic Hydrocarbons (PAHs)**

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102PAH002	11/2/2007	4:21	Pump Station 2	NAPHTHALENE	N	<0.000039	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	ANTHRACENE	N	<0.000028	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	PYRENE	N	<0.000032	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	BENZO(G,H,I)PERYLENE	N	<0.000024	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	BENZO(E)PYRENE	N	<0.000026	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	INDENO-1,2,3-CD-PYRENE	N	<0.000024	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	BENZO(B)FLUORANTHENE	N	<0.000026	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	FLUORANTHENE	N	<0.000024	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	BENZO(K)FLUORANTHENE	N	<0.000026	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	ACENAPHTHYLENE	N	<0.000032	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	CHRYSENE	N	<0.000029	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	BENZO(A)PYRENE	N	<0.000026	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	DIBENZO(A,H)ANTHRACENE	N	<0.000023	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	1-NITROPYRENE	N	<0.000020	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	BENZO(A)ANTHRACENE	N	<0.000021	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	ACENAPHTHENE	Y	0.000068	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	PHENANTHRENE	N	<0.000028	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	FLUORENE	N	<0.000029	ppm
CLMS1102PAH003	11/2/2007	4:32	Pump Station 3	NAPHTHALENE	N	<0.000038	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	ANTHRACENE	N	<0.000028	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	PYRENE	N	<0.000033	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	BENZO(G,H,I)PERYLENE	N	<0.000024	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	BENZO(E)PYRENE	N	<0.000026	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	INDENO-1,2,3-CD-PYRENE	N	<0.000024	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	BENZO(B)FLUORANTHENE	N	<0.000026	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	FLUORANTHENE	N	<0.000024	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	BENZO(K)FLUORANTHENE	N	<0.000026	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	ACENAPHTHYLENE	N	<0.000033	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	CHRYSENE	N	<0.000029	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	BENZO(A)PYRENE	N	<0.000026	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	DIBENZO(A,H)ANTHRACENE	N	<0.000024	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	1-NITROPYRENE	N	<0.000020	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	BENZO(A)ANTHRACENE	N	<0.000022	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	ACENAPHTHENE	N	<0.000032	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	PHENANTHRENE	N	<0.000028	ppm

## **Analytical Air Sampling Summary for Polycyclic Aromatic Hydrocarbons (PAHs)**

Sample	Date	Start Time	Location	Analyte	Detect Flag	Concentration	Units
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	FLUORENE	N	<0.000030	ppm
CLMS1102PAH004	11/2/2007	4:40	Pump Station 4	NAPHTHALENE	N	<0.000039	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	ANTHRACENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	PYRENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	BENZO(G,H,I)PERYLENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	BENZO(E)PYRENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	INDENO-1,2,3-CD-PYRENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	BENZO(B)FLUORANTHENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	FLUORANTHENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	BENZO(K)FLUORANTHENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	ACENAPHTHYLENE	Y	0.46	ug
CLMS1102PAH005	11/2/2007	Blank	Blank	CHRYSENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	BENZO(A)PYRENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	DIBENZO(A,H)ANTHRACENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	1-NITROPYRENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	BENZO(A)ANTHRACENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	ACENAPHTHENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	PHENANTHRENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	FLUORENE	N	NA	ppm
CLMS1102PAH005	11/2/2007	Blank	Blank	NAPHTHALENE	N	NA	ppm

# **Appendix I**

## **Data Verification Report**



## DATA VERIFICATION REPORT

<b>Client Name</b>	<b>CSXT</b>
<b>Project</b>	<b>4557</b>
<b>Site Name</b>	<b>Clark County, Mississippi</b>
<b>Laboratory</b>	<b>Galson Laboratories</b>
<b>Report Date</b>	<b>Sample Delivery Group (SDG) #</b>
November 29, 2007	L162750

<b>Analytical Method</b>	<b>Analyte(s)</b>	<b>SDG #</b>	<b>Sample Date</b>	<b>Number of Samples</b>
Mod. OSHA PV2120/ EPA TO-15	VOCs <sup>1</sup>	L162750	November 2, 2007	5
Mod. NIOSH 5506	PAHs <sup>2</sup>	L162750	November 2, 2007	4
<b>Total Number of Samples</b>			9	

**“Data Verification** is the process of evaluating the completeness, correctness, and conformance/compliance of a specific data set against the method, procedural, or contractual requirements.” Guidance on Environmental Data Verification and Data Validation EPA QA/G-8, EPA/240/R-02/004, November 2002.

The analytical data in this report have been evaluated to determine whether the reported results are compliant with the requirements of the sampling and analysis methods and procedures used to generate the results. This process assumes that the methods used to generate the data are valid and applicable for this project; no evaluation of the analytical quality or usability of the data set has been performed (“Data Validation” as defined in EPA QA/G-8).

The data verification process was conducted using the following sources:

- USEPA. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. Washington, DC: U. S. Environmental Protection Agency, Office of Emergency and Remedial Response; 1999 Oct; EPA540/R-99/008; OSWER-9240.1-05A-P.

<sup>1</sup> Volatile Organic Compounds

<sup>2</sup> Polynuclear Aromatic Compounds



- USEPA. Guidance of Environmental Data Verification and Data Validation. EPA QA/G-8. Washington, DC: U.S. Environmental Protection Agency, Office of Environmental Information; 2002 Nov; EPA/240/R-02/004.

The complete data package includes additional requested documentation when necessary, which is appended to the data verification report, the results of which have been evaluated for compliance with holding times, sample preservation, and sample analysis procedures.

It is recommended that this data verification report be included for all subsequent applications related to this laboratory data set. The release of information pertaining to the data verification report is authorized by the following signatures:



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Stephanie Rowsey  
Project Environmental Chemist  
Data Reviewer

December 4, 2007

Date



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Christine Millner  
Environmental Scientist  
Report Reviewer

December 11, 2007

Date

<b>Organic Data Qualifier Definitions</b>	
U	<i>The analyte was analyzed for, but was not detected above the reported sample quantitation limit.</i>
J	<i>The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.</i>
N	<i>The analysis indicates the presence of an analyte for which there is presumptive evidence to make a “tentative identification”.</i>
NJ	<i>The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical values represents its approximate concentration.</i>
UJ	<i>The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.</i>
R	<i>The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.</i>
<u>USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA, 1999.</u>	

# **Samples and Analytes Review**

**Page 1 of 1**  
**SDG# L162750**

Sample Identifications							
Lab ID	CTEH ID	Matrix	Date Sampled	Date of Extraction	Date of Analysis	Comments (if needed)	Analyte(s); Method(s)
L162750-1	CLMS1102PAH001	AIR	11/2/2007	11/13/2007	11/13/2007	No Comments	PAH; Mod. NIOSH 5506
L162750-2	CLMS1102PAH002	AIR	11/2/2007	11/13/2007	11/13/2007	No Comments	PAH; Mod. NIOSH 5506
L162750-3	CLMS1102PAH003	AIR	11/2/2007	11/13/2007	11/14/2007	No Comments	PAH; Mod. NIOSH 5506
L162750-4	CLMS1102PAH004	AIR	11/2/2007	11/13/2007	11/14/2007	No Comments	PAH; Mod. NIOSH 5506
L162750-5	CLMS1102PAH005	AIR	11/2/2007	11/13/2007	11/14/2007	Blank	PAH; Mod. NIOSH 5506
L162750-6	CLMS1102MC001	AIR	11/2/2007	11/8/2007	11/9/2007	No Comments	VOC; Mod. TO15/ PV2120
L162750-7	CLMS1102MC002	AIR	11/2/2007	11/8/2007	11/9/2007	No Comments	VOC; Mod. TO15/ PV2120
L162750-8	CLMS1102MC003	AIR	11/2/2007	11/8/2007	11/9/2007	No Comments	VOC; Mod. TO15/ PV2120
L162750-9	CLMS1102MC004	AIR	11/2/2007	11/8/2007	11/9/2007	No Comments	VOC; Mod. TO15/ PV2120
<b>TOTAL NUMBER OF BILLABLE SAMPLES</b>						<b>9</b>	

## DATA ASSESSMENT NARRATIVE

### General

This data verification report assumes that all analytical results are correct as reported by Galson Laboratories and is based upon examination of the reported holding times, sample preservation, sample receipt, sample analysis, and complete records. This report was prepared following the guidance specified in:

- NIOSH. Method 5506: Polynuclear Aromatic Hydrocarbons, Aromatic. In: NIOSH Manual of Analytical Methods. 4<sup>th</sup> ed. Cincinnati, OH: National Institute of Occupational Safety and Health: 1994.
- OSHA. Method Number PV2120: Volatile Organic Compounds in Air. Washington, DC: Occupational Safety and Health Administration; 2003 May; <http://www.osha.gov/dts/sltc/methods/partial/pv2120/pv2120.html>
- USEPA. Compendium Method TO-15. Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). In: USEPA. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. 2nd ed. Cincinnati, Ohio: U.S. Environmental Protection Agency, Office of Research and Development; 1999 Jan; EPA/625/R-96/010b.
- USEPA. Table 1A. Summary of Holding Times and Preservation for Volatile Organic Compounds (VOCs) in Air. USEPA Region 9 Data Quality Indicator (DQI) for USEPA. Compendium Method TO-15. Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). In: USEPA. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. 2nd ed. Cincinnati, Ohio: U.S. Environmental Protection Agency, Office of Research and Development; 1999 Jan; EPA/625/R-96/010b. [http://epa.gov/region09/qa/pdfs/dqi/vocs\\_gc.pdf](http://epa.gov/region09/qa/pdfs/dqi/vocs_gc.pdf)
- USEPA. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. Washington, DC: U. S. Environmental Protection Agency, Office of Emergency and Remedial Response; 1999 Oct; EPA540/R-99/008; OSWER-9240.1-05A-P.
- USEPA. Guidance of Environmental Data Verification and Data Validation. EPA QA/G-8. Washington, DC: U.S. Environmental Protection Agency, Office of Environmental Information; 2002 Nov; EPA/240/R-02/004.

### **SDG# L162750**

Verification procedures were conducted on the lab results for VOCs and PAHs reported by Galson Laboratories **L162750**.

The following parameters were evaluated:

- Data Completeness
- Holding Times
- Sample Preservation
- Sample Receipt
- Sample Analysis

### **Overall Assessment**

The following comments refer to specific observations from the data verification process. Worksheets detailing the review of each of the parameters listed above can be provided per additional request.

### **VOLATILE ORGANIC COMPOUNDS by MODIFIED PV2120/EPA TO-15 by Gas Chromatography (GC)/Mass Spectrometry (MS)**

#### **SAMPLE RECEIPT AND ANALYSIS**

Galson Laboratories received four minican samples from the field on November 8, 2007, and logged as **L162750**. Air samples were collected on November 2, 2007, per COC. Samples were logged out of sample storage for screening on November 8, 2007, and analyzed on November 9, 2007.

#### **HOLDING TIMES and PRESERVATION**

EPA TO-15 Table 1A recommends a 14 day holding time period from sample collection and 10 days from receipt at laboratory for VOCs in SUMMA canisters. All samples in the data package met the 14 day holding time and 10 day from laboratory receipt holding time per EPA TO-15, Table 1A.

In addition, laboratory Internal Chain of Custody (ICOC) for sample storage container information was provided in reviewed data packages. For sample preservation, EPA TO-15 recommends samples remain stable at ambient temperature under the holding time period for VOCs in SUMMA canisters. All samples were stored at ambient temperature (on shelf) at the laboratory per ICOC and sample collection, preparation, and analysis were within the 14 day holding time period. Samples were received in ice per COC.

#### **SAMPLE REVIEW**

##### **Sample Preparation**

All samples were extracted by modified method EPA TO-15. A separate extraction form was not provided by the laboratory in each data package, but sample extraction information is provided on the Injection Log in the data package.

The case narrative stated the detection limit standard (DLS) and the laboratory control standard (LCS) were within control limits for all compounds. Additionally, all continuing calibration verifier standards (CCV) were also within established control limits for all compounds. However, the lab noted the initial CCV (WG119357-4) was used as an instrument primer and was not used or reported. Additionally, it noted the duplicate sample (L162750-6) had carry over of hexachloro-1,3-butadiene at approximately seven parts per billion volume (ppbv). The result was not confirmed in the sample analysis of CLMS1102MC001 (L162750-6). Therefore, the lab did not report this sample result.

### **Blanks Review**

For all samples, one blank per Quality Control (QC) batch was prepared and analyzed according to the method per analytical batch. The samples were prepared in association with analytical work group 119357. In addition, the laboratory cleaned canisters prior to sampling per method specifications. All blanks were free of contaminants in the remaining data package.

### **Additional Information Requested by Reviewer**

The reviewer requested the CTEH COC from the lab via email on December 4, 2007. The COC was received the same day via email.

### **Parameters Not Evaluated by Reviewer**

Method EPA TO-15 provides recommendations of column parameters, carrier gas, flow rate, injection volume, GC temperature conditions, and Mass Spectrometer conditions. Though raw data was provided in the data package, specific parameters were not shown; therefore, overall instrument conditions for sample analysis could not be evaluated for compliance against the method by reviewer.

Method compliance for preservation, holding time, and sample analysis were discussed previously. In addition, sampling procedures are unknown to the reviewer. Therefore, sampling requirements were not evaluated.

### **POLYNUCLEAR AROMATIC COMPOUNDS by MODIFIED NIOSH 5506 by High Pressure Liquid Chromatography (HPLC)/Ultraviolet Detection (UV)**

### **SAMPLE RECEIPT AND ANALYSIS**

Galson Laboratories received five air samples from the field on November 8, 2007, and logged as **L162750**. Air samples were collected on November 2, 2007, per COC. Samples were prepared on November 13, 2007. Samples were analyzed on November 13 and 14, 2007.

### **HOLDING TIMES and PRESERVATION**

No specific guidance is given for holding times for NIOSH 5506. NIOSH 5506 recommends transferring samples to culture tubes, protecting from sunlight, and shipping at 0°C. Per the COC, samples were shipped in ice; however, it is unknown to the reviewer if samples were transferred to culture tubes or how effectively they were protected from sunlight. CTEH personnel noted that samples were wrapped in aluminum foil to protect from light, but the laboratory not this on their COC. Furthermore, sample receipt temperature not was recorded on the COC by the lab upon receipt. It is unknown to the reviewer is samples were compliant with temperature recommendations. In addition, ICOC for sample storage container information was provided in reviewed data package. Per the ICOC, samples submitted for modified NIOSH 5506 were stored in the freezer until subsequent analysis.

### **SAMPLE REVIEW**

#### **Sample Preparation**

Samples were extracted by modified method NIOSH 5506. A separate preparation form was provided by the laboratory. Sample extraction information is provided on the sample preparation form and quality control (QC) summary in the data package. Samples were extracted in 3.0 milliliters (mL) of acetonitrile, agitated for 30 minutes, and then filtered with 0.2 micrometer (µm) syringe filters. The injection volume was 2 microliter (µL) and the flow rate was 1.2 milliliter/minute (mL/min). The UV detector was set at 254 nanometers (nm). The extraction procedure follows Galson SOP IL-OSHA58 Revision 0.

NIOSH 5506 recommends for samples to have a sample volume range from 200 liter (L) to 1000 L. All samples exceeded the method recommended maximum sample volume of 1000 L. However, the lab did not note any sorbent breakthrough in the samples and was not observed by the reviewer. For each sample, two in-series sorbent tubes were collected and analyzed. Analysis of the second “back” tube indicates that no samples have breakthrough or migration.

#### **Blanks Review**

CTEH provided one field blank. NIOSH 5506 recommends three to ten field blanks per set of samples. One blank per QC batch was prepared per method for the analytical batch. Samples were prepared in association with analytical work group number 119544. All blanks were free of contaminants.

#### **Additional Information Requested by Reviewer**

No additional information was requested by the reviewer to the laboratory.

#### **Parameters Not Evaluated by Reviewer**

Method NIOSH 5506 provides recommendations of column parameters, mobile phase, flow rate, and injection volume. Though raw data was provided in the data package, specific parameters were not shown; therefore, overall instrument conditions for sample analysis could not be evaluated for compliance against the method by reviewer, unless previously discussed.

#### **OVERALL REVIEW**

QC review of the Galson data package **L162750** has been completed. Reviewed data in the analytical report as reported by Galson Laboratories are compliant against modified NIOSH 5506 and modified OSHA PV 2120/ EPA TO-15 for reviewed parameters of preservation, holding time, and sample analysis, unless previously noted. Data Verification was acceptable and the analytical data are usable. No further data was requested from the laboratory.